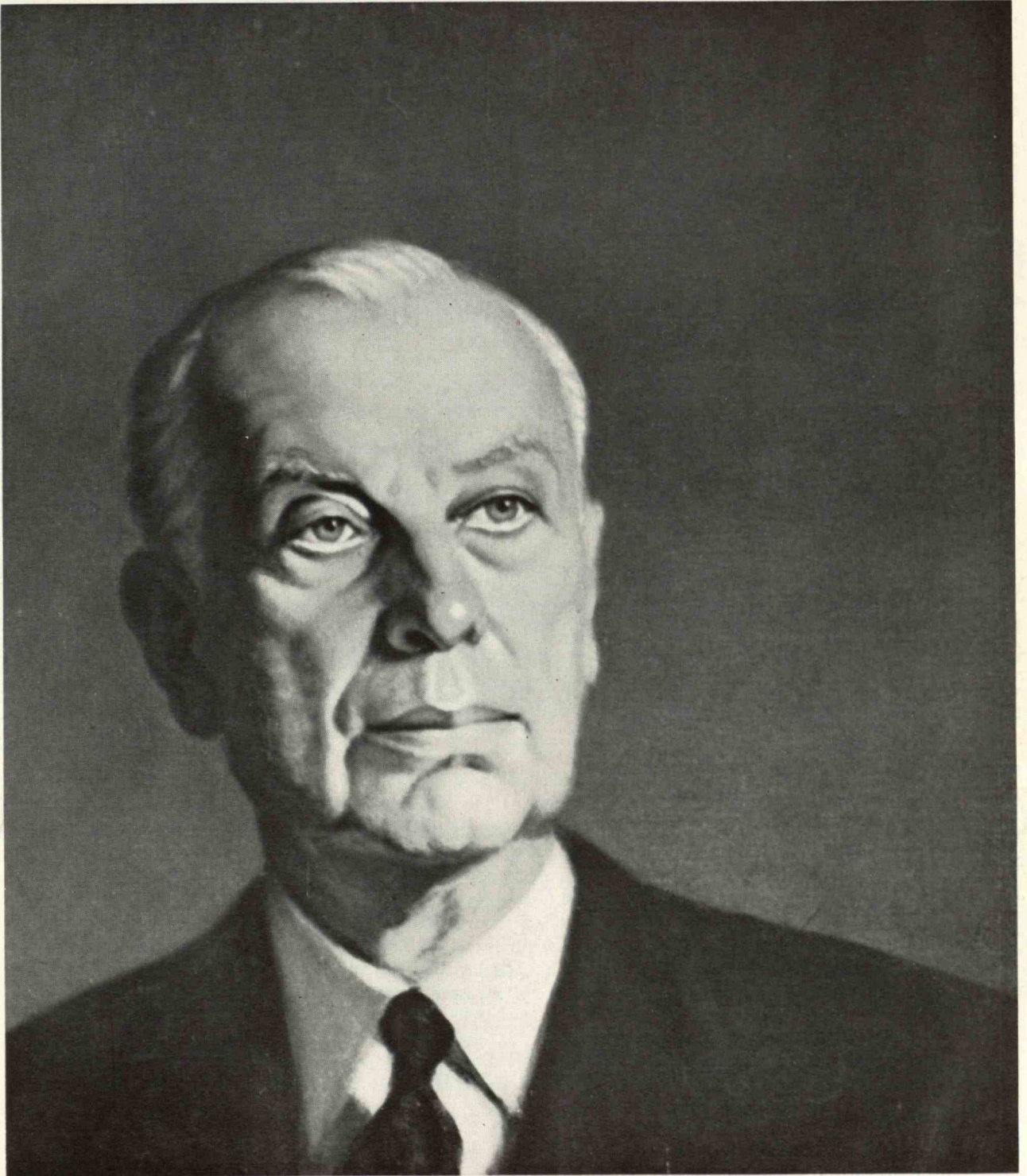


Technology Review

July 1960



The Honorary Chairman of the M.I.T. Second Century Fund

technology review

Published by MIT

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Simplex **TIREX**

BALANCED COMPOUNDING means **BALANCED RESISTANCE**

... to all of the factors that attack portable cables and cords



It is not enough that portable cables or cords have the ability to resist attacks by water or oil, or any other single factor. To provide truly dependable service over long periods of time, portable cables must have balanced resistance to *all* deteriorating factors.

Since there is no one ingredient that has inherent resistance to all of these factors, the insulation or jacket of the portable cable or cord must be a combination of ingredients.

Balanced Compounding refers to the scientific selection of these ingredients and the proportions in which they are mixed. Where the balance is upset by loading the compound with any *one* ingredient, resistance to *one* factor may increase, but resistance to other factors will be lessened.

Proof of the worth of Simplex Balanced Compounding can be found in the fact that Tirex portable cables have been successfully performing under the most rugged operating conditions for periods ranging up to twenty years.

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*These alumni
contribute to the
important advances
in environmental
testing that
come from MB—*

| NAME | CLASS OF |
|---------------------|----------|
| John A. Gunnarson | 1946 |
| Harry N. Cottle | 1944 |
| Joseph E. Tripp | 1952 |
| Thomas C. Warner | 1947 |
| Charles E. Maki | 1951 |
| John A. Trevett | 1954 |
| Richard B. Davidson | 1949 |
| George F. Rogers | 1955 |

TWENTY MILLION WATTS — that is the cumulative output available from MB power supplies now driving vibration test systems around the world.

This figure is not only a measure of vibration testing's new importance but also of MB's achievement in the field of electronics for vibration, acoustics and sonar.

MB designs and produces *completely integrated* test systems incorporating amplifiers, transducers and control consoles. In keeping with its position of leadership, the company was first to initiate Vibration Seminars for the training of specialists in the operation of this complex test equipment.

At this very moment, MB engineers are designing ever more powerful amplifiers and transducers with enough power to fatigue-test multi-ton structures to destruction. These and still other developments on the boards are reasons why engineers everywhere recognize that "the important advances in environmental testing come from MB."

If you would like more information on MB Electronics and its fields of interest, write to Harry N. Cottle, Chief Engineer, MB Electronics.

MB ELECTRONICS

A DIVISION OF TEXTRON ELECTRONICS, INC., 782 Whalley Ave., New Haven 11, Conn.

IRE TRANSACTIONS ON INFORMATION THEORY

A Theorem on Cross Correlation Between Noisy Channels

AN RC integrating circuit with impulse response $e^{-t/\tau}$ is acted upon by noise impulses, $1/\tau \delta(t - t')$, with Poisson arrivals: mean frequency of arrivals $1/\tau_0$, and with probability density $A(y)$. The first-order equilibrium density $W_1(x, t)$ is well-known. We describe $W_2(x_1, x_2, t)$ by describing statistics.

Consider an equilibrium density $W(x, t)$ to be described by

$$\partial W(x, t) / \partial t =$$

which has as its general solution an arbitrary function $\psi(k)$ such that $u - t/\tau = \log k - t/\tau = \log(ke^{-t/\tau})$. Thus, the solution is $\psi(k, t) = F(ke^{-t/\tau}) + \psi_{eq}(k)$ where F is a function to be determined by the boundary condition $\psi(k, 0) = \psi_0(k)$.

Physically we expect that an equilibrium density $A(y)$ will be reached, so as a particular solution we take $\psi(k) = A(y)$. We derive here the second-order equilibrium density of the system. We expect that an equilibrium density will be reached.

IRE TRANSACTIONS ON INFORMATION THEORY

The Second-Order Distribution of Integrated Noise

This may be seen by considering the conditional density $P_2(x' | x, \Delta)$ for an infinitesimal time Δ . The probability of no pulses arriving in time Δ is $(1 - \Delta/\tau_0)$, in which case the system amplitudes decay to $x' e^{-\Delta/\tau}$. The probability of a pulse arriving is Δ/τ_0 , in which case the system jumps from x' to x with probability $A(x - x')$. The probability $P_2(x' | x, \Delta) = \delta(x - x' e^{-\Delta/\tau}) (1 - \Delta/\tau_0) + \int_{-\infty}^{\infty} W(x'', t) P_1(x' | x'', \Delta) dx''$ to first order in Δ , differentiating with respect to Δ , we obtain Eq. (1).

boundary condition $\psi(k, 0) = \psi_0(k)$ being determined by an arbitrary condition $\psi(k, 0) = W_0(x)$. Setting $t = 0$, we have $\psi(k, 0) = \psi_0(k)$.

SYLVANIA'S



Is engaged in diversified, active programs that afford broad individual participation

The Applied Research Laboratory is directing its growing capability toward theoretical and experimental investigations that will lead to major state-of-the-art advances in the field of military and commercial electronic systems. The opportunity for individual recognition in this challenging technological area is typified by the titles of the two recent technical papers, by ARL staff members, which are depicted here.

If you possess superior qualifications (an advanced degree is desirable) and would like to join this highly professional group, you are invited to inquire about career positions in these areas:

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For further information about research work in the above areas, and other technical publications by ARL engineers, you are invited to write to:

Dr. L. S. Sheingold, Director, Applied Research Laboratory

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Technology Review

Reg. U.S. Pat. Off.

Volume 62, Number 9

Edited at the Massachusetts Institute of Technology

July, 1960

Feedback

The Press Applauds The Institute

EDITORIAL REACTION to M.I.T.'s Second Century Fund announcement in May was highly favorable.

"It is in the service of both science and man that M.I.T. is seeking \$66,000,000," said *The Boston Herald*.

"For the good of our country and our educational system," said *The Hartford Times*, "it is most reassuring to know that this great institution is laying a solid groundwork to meet the challenge of the 21st Century."

"The building program by itself is enough to fire the imagination," said *The Boston Globe*, "But the brick-and-mortar phase of the M.I.T. program is merely to permit intellectual growth to function in suitable and encouraging surroundings. M.I.T.'s Second Century may well witness greater wonders than the first."

The Importance of Chinese As a Scientific Language

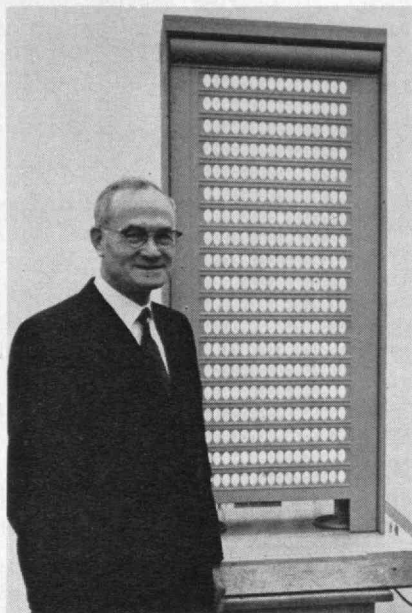
FROM JOHN W. WINCHESTER, '55:

During recent years the number of scientific journals and the total volume of scientific literature published by the People's Republic of China appear to have increased considerably. A recent article by the Chinese¹ indicates that scientific research has grown rapidly during the past few years, and evidence cited by Wilson² on the magnitude of the effort in scientific education and research leads one to expect that the increase will continue. At the present time there are about 450 journals dealing with scientific subjects, and the increase has been 500 per cent over the past five years. An examination of a list of these publications by the author reveals that they represent all

(Concluded on page 58)

¹"Physics in Red China," *Physics Today*, 13, No. 4, April, 1960, reprinted from *Scientia Sinica*, 8, No. 10, October, 1959.

²J. Tuzo Wilson, "Red China's Hidden Capital of Science," *Saturday Review of Literature*, November 8, 1958, pp. 47-56; *One Chinese Moon* (New York: Hill and Wang, 1959); "Geophysical Institutes of the U.S.S.R. and of the People's Republic of China," *Trans. Am. Geophys. Union*, 40, 3-24 (1959).



CECIL H. GREEN, '23, and a model of a plan for the Earth Sciences Building to house the new center which his recent gift to the Institute will support. Other big gifts announced this spring are reported on pages 25 and 26 this month.

EDITOR: Volta Toirey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Diana de Filippi, Norma G. Humphries; BUSINESS STAFF: Madeline R. McCormick, Louise E. Ryan; PUBLISHER: H. E. Lobdell, '17.

The Technology Review is published monthly from November to July inclusive, on the 27th day of the month preceding the date of issue, by the Alumni Association of M.I.T.; Edward J. Hanley, '24, President; H. E. Lobdell, '17, Executive Vice-president; William W. Garth, Jr., '36, William L. Taggart, Jr., '27, Vice-presidents; Donald P. Severance, '38, Secretary-Treasurer.

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This Month

The Cover

An oil portrait of Alfred P. Sloan, Jr., '95, which hangs in the Sloan Building at M.I.T., is reproduced on this month's cover. On Page 25, you will see a photograph of Mr. Sloan with President Killian inspecting a model of the future Institute.

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Individuals Noteworthy

Professors Emeriti

NINE members of the M.I.T. Faculty retired as professors emeriti this spring, but many of them will continue their association with the Institute as lecturers in their Departments.

They were:

Raymond D. Douglass, '31, Professor of Mathematics.

Ralph E. Freeman, Professor of Economics.

C. Richard Soderberg, '20, Institute Professor.

Dirk J. Struik, Professor of Mathematics.

C. Fayette Taylor, '29, Professor of Automotive Engineering.

Laurens Troost, Professor of Naval Architecture.

Harold C. Weber, '18, Professor of Chemical Engineering.

Norbert Wiener, Institute Professor.

Samuel D. Zeldin, Associate Professor of Mathematics.

In Liaison Office

TO REPLACE Vincent A. Fulmer, '53, who is on leave to serve as Executive Assistant to the Chair-

man of the Corporation, Winston R. Hindle, Jr., '54, has been appointed Acting Director of the M.I.T. Industrial Liaison Office. Mr. Hindle has been an industrial liaison officer since 1958, and formerly was in the Office of the Navy Comptroller.

Medical Director

DR. ALBERT O. SEELER has been appointed Professor and Medical Director of M.I.T., to succeed Dr. James M. Faulkner, who asked to be relieved of the position to devote more time to personal and professional affairs.

Dr. Seeler was graduated from Harvard College in 1934 and from Harvard Medical School in 1938. He interned at Memorial Hospital in Worcester, and was on the staff of the Merck Institute in Rahway, N.J., before returning to Boston in 1945. He has since been associated with the Harvard Medical School, the Harvard School of Public Health, and Boston City Hospital, and has been Physician-in-Chief of the M.I.T. Medical Department. He is a specialist in internal medi-

cine, particularly interested in occupational diseases.

Dr. Faulkner, who was formerly Dean of the Boston University School of Medicine, will continue to serve as a consultant to the Department.

ROTC Commander

COL. IRVING W. FINBERG, '31, is assuming command of the Army ROTC unit at M.I.T., as the successor to Col. Gilbert G. Brinckerhoff, Jr., who retired this spring from his post as Professor of Military Science and Tactics.

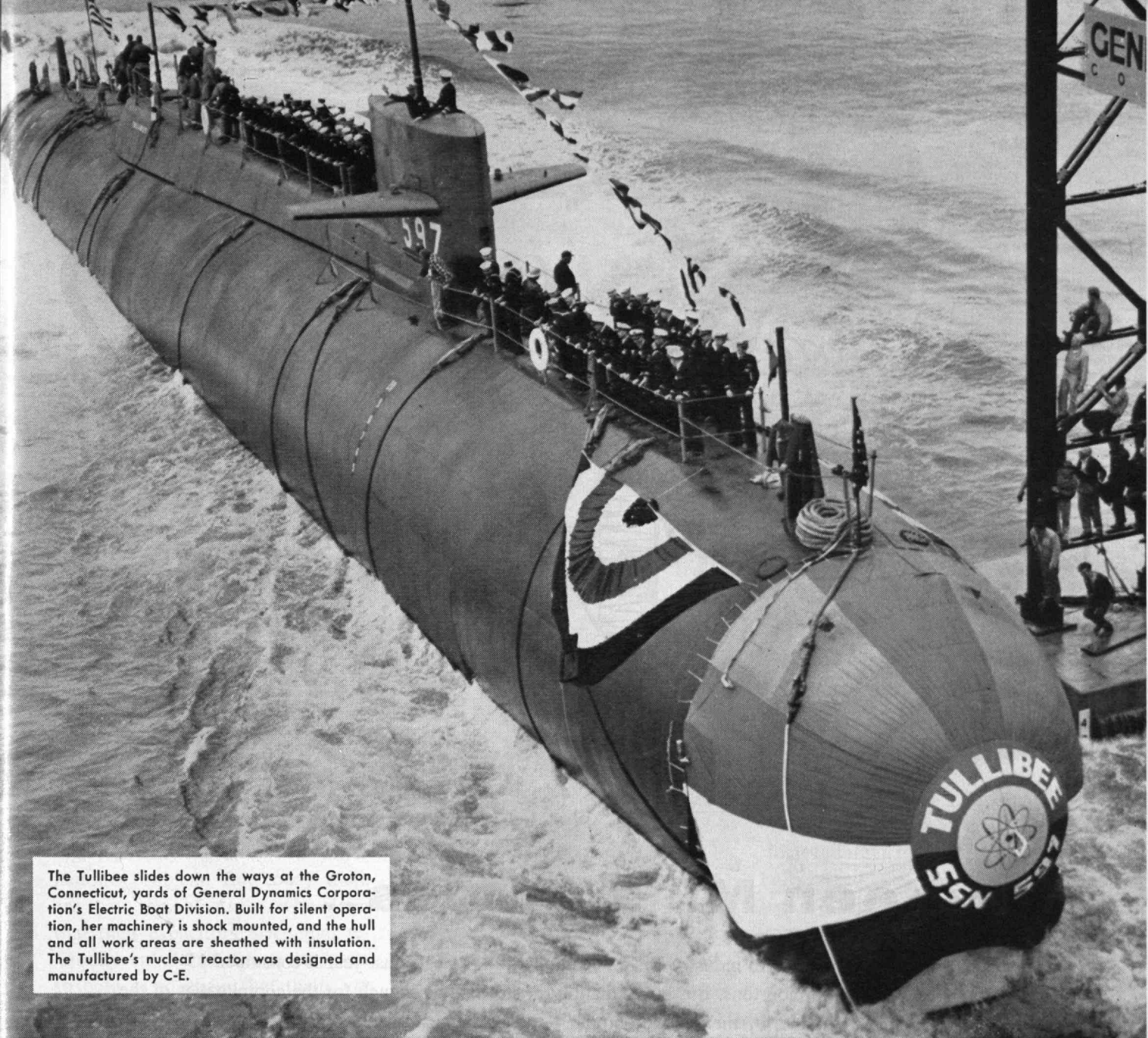
Col. Finberg earned the Legion of Merit, the Order of the British Empire, and the Italian Cross of Valor during the Italian campaign in World War II, and later served as commanding officer of the Ryukus Engineer Depot on Okinawa, as Logistics Officer at Fort Leonard Wood, Mo., and as Engineering Officer for the Base Section of the American Communications Zone with headquarters in Poitiers, France.

Col. Brinckerhoff held many important positions during his 30 years of military service and has been at M.I.T. since 1957. He will be associated henceforth with a firm of consulting engineers in Harrisburg, Pa. For his service at M.I.T., he has received the XIII Corps Certificate of Achievement.

(Continued on page 8)



"EXCELLENCE IN TEACHING" awards of \$500 each were presented in May to five students who are working for advanced degrees in the Institute's Department of Electrical Engineering. Accepting award from Jerome B. Wiesner (left), Acting Head of the Department, is Wayne G. Kellner, '57. Gordon S. Brown, '31 (far right), Dean of the School of Engineering, observes the ceremony with the other recipients (from left to right): Paul Penfield, Jr., Bruce D. Wedlock, '57, Trenchard More, Jr., '57, and Bernard W. Lovell, '57. The awards, to aid graduate students who demonstrate an interest and proficiency in teaching, are supported by Television Shares Management Corporation and the Sprague Electric Company.



The Tullibee slides down the ways at the Groton, Connecticut, yards of General Dynamics Corporation's Electric Boat Division. Built for silent operation, her machinery is shock mounted, and the hull and all work areas are sheathed with insulation. The Tullibee's nuclear reactor was designed and manufactured by C-E.

THIS SUPER-SILENT HUNTER-KILLER HAS KEEN EARS

The Tullibee, the first nuclear powered "hunter-killer" submarine, launched on April 27th, is designed to find and destroy enemy submarines beneath the sea's surface. It is the first submarine in the nuclear Navy to have a turbo-electric drive. It utilizes the most advanced hull design, is packed with sonar equipment and represents a major advancement in the Navy's anti-submarine warfare development program.

Silence is vital to Tullibee's mission and, as a result, she's one of the quietest underseas craft ever built. She is also unique in that her torpedo tubes are located amidships rather than in the bow. This allows Tullibee's nose to be loaded with an unprecedented number of sonar tracking transducers and hydrophones.

Combustion Engineering designed the nuclear power plant of the Tullibee and manufactured most of its major compo-

nents, including the core with its fuel element assemblies. A prototype installation, including a portion of a submarine hull, has been in full power operation for some time at the C-E Naval Reactor Division in Windsor, Connecticut. This prototype, also designed and built by C-E, is the only installation of its kind at a privately owned site. It is now used for test purposes and training Navy crews.

The Tullibee adds one more name to the long list of notable power installations designed and built by C-E . . . installations that are representative of the most advanced practice in steam generation on land or sea.

* * *

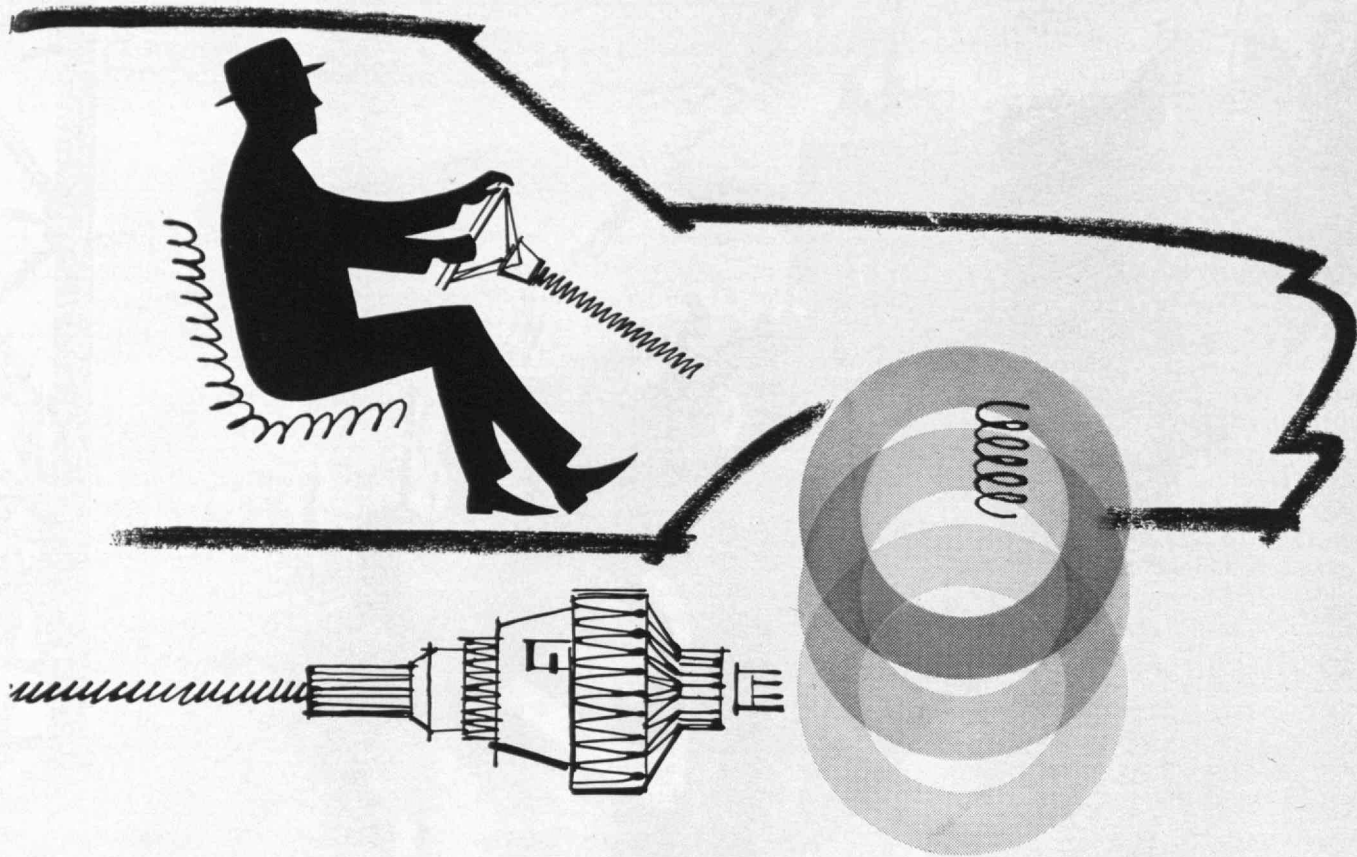
C-E also designed and built the reactor vessels and steam generators for the USS Triton, world's largest submarine, which recently encircled the globe, submerged, in 83 days.

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HOW TO SELECT HIGH RELIABILITY CAPACITORS

At one time Sprague Electric was the only manufacturer offering true high reliability capacitors. The buyer had no problem. But today there are many manufacturers who claim that their capacitors meet high reliability standards. Some are even so bold as to claim that theirs are *the most reliable*.

Check the record before you choose

The only sound approach to evaluate these claims is to investigate the *reliability record* achieved by each of the companies under consideration. Remember, it takes test data to establish the reliability of a product. Claims are not enough.

Now let's look at the record

Sprague Electric can substantiate its claim that its HYREL® Q Capacitors are "the most reliable capacitors made" with the most extensive test data available in the entire electronic industry. The performance of HYREL Q Capacitors is virtually

impossible to surpass... now and for some years to come.

But let's start at the beginning—the *specifications*. Sprague Electric's high reliability capacitors were originally made under Sprague Electric Specification PV-100—the *first high reliability capacitor specification for missiles and other critical applications*. This specification and a later revision, PV-100A, have proven so comprehensive and so successful in providing "the highest order of reliability known to capacitor manufacturing" that their provisions are currently reflected in *every* military specification covering high reliability capacitors. This is a distinction shared by no other capacitor manufacturer.

Now look at the record of HYREL Q Capacitors

On accelerated life tests the failure rate of HYREL Q Capacitors has been less than 0.05%, after more than 16 million unit hours accumulated on tests of 250 hours at 140% rated

voltage, 125 C. On high frequency vibration tests, there hasn't been a single failure in the more than 50,000 units tested. On seal, moisture resistance, and temperature cycling and immersion tests, the failure rate has been less than 0.1%.

Such performance from production line capacitors can only be achieved through the most intensive (and expensive) kind of reliability program—in design and development, in production engineering, in manufacturing facilities, in testing intensity and extensity—all of which should be investigated thoroughly.

After you've checked the record, then decide for yourself which capacitor is "the most reliable made."

For complete facts and figures on HYREL Q Capacitors, call your Sprague District Office or Representative, or write for HYREL Bulletin 2900A and Specification PV-100A to Technical Literature Section, Sprague Electric Company, 255 Marshall St., North Adams, Massachusetts.



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Individuals Noteworthy

(Continued from page 4)

A. T. Robinson: 1871-1960

A MEMBER of the M.I.T. Faculty for 45 years, Archer Tyler Robinson, Professor of English, Emeritus, died on May 6 at Center Moriches, Long Island.

Born in Norfolk, Va., on May 9, 1871, Professor Robinson attended Phillips Andover Academy and Harvard University, receiving his bachelor's degree in 1896 and his master's degree in 1915. He came to M.I.T. as instructor and became assistant professor in 1906, associate professor in 1914, and professor in 1915. He was in charge of the history curriculum from 1922 until his retirement in 1941. He was chairman of the Cilley Fund, established to provide books for the Walker Memorial Library, and author of *Applications of Logic* (1912) and *Notes and Outlines* (1922). In 1928, Professor Robinson was elected an honorary member of the Alumni Association.

He is survived by his son, William W. Robinson, '26.

LeRoy B. Gould: 1881-1960

THE SECRETARY of the Class of 1903, LeRoy B. Gould, died May 29.

Born in Taunton, Mass., on April 12, 1881, he lived in Manchester, N.H., for 16 years and since 1926 had been a resident of Newton Center. Mr. Gould was for 43 years an electrical engineer for the New England Telephone and Telegraph Company. He was a member of the American Institute of Electrical Engineers, and had served as president of the Life Members Club of the Sherwin Chapter (Greater Boston) of Telephone Pioneers.

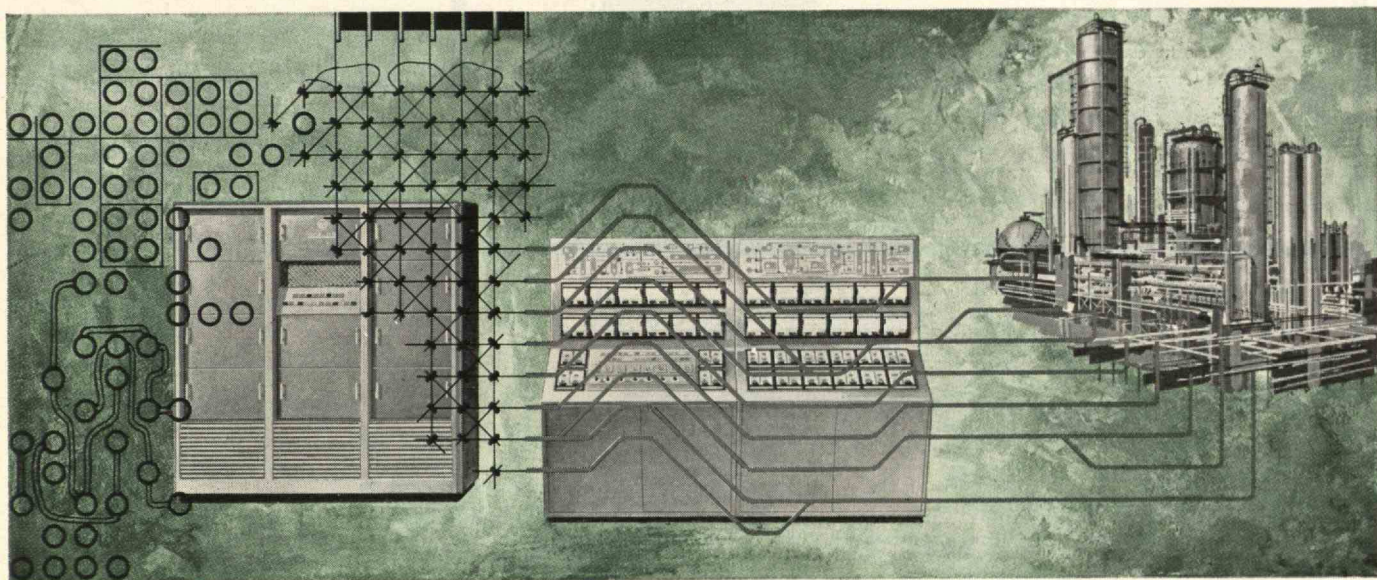
He was a member of the Norumbega Lodge, AF and AM in Newton, of the Massachusetts Consistory, SPR, and of Aleppo Temple, AAONMS, in Boston; and active in scout work and the First Baptist Church in Newton.

Surviving are his wife, Florence E. Gould; his four children, Mrs. Donald H. Rhoades of Claremont, Calif.; Mrs. Howard R. Murphy of Freeport, N.Y.; Mrs. Roger Stebbins of San Gabriel, Calif.; and Gilbert B. Gould, '43, of Whitesboro, N.Y.

(Continued on page 12)

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the systems
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Careers open to electronic, mechanical, and chemical engineers, chemists and applied physicists, as well as business administration and liberal arts graduates. If you're interested in research, engineering, production, or sales engineering opportunities, write to Bruce Hainsworth, Manager of Personnel and Training.

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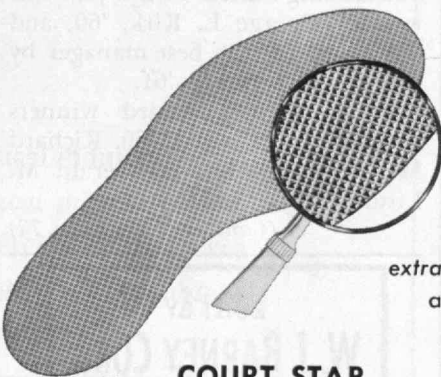


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(lace-to-toe)

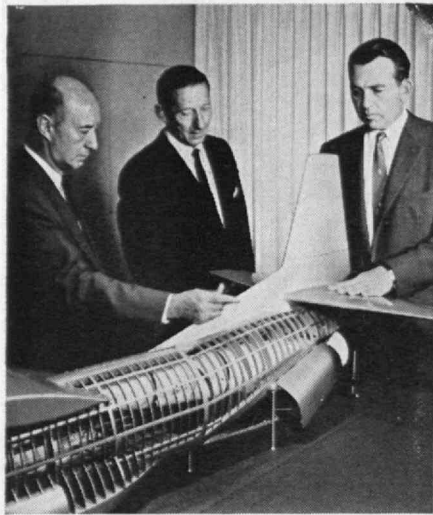
NET KING
(circular vamp)



L. P. SANBORN '17
A. H. WECHSLER '21
F. L. HALL '25
R. E. GLADSTONE '40



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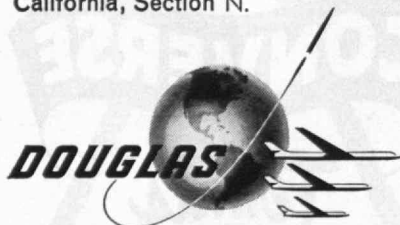


Schuyler Kleinhans and Charles Glasgow, Chief Engineer and Deputy Chief Engineer of the Santa Monica Division, go over air transport needs relating to advanced cargo loading techniques with Donald W. Douglas, Jr., President of Douglas.

How to put wings on a warehouse

Giving overseas air bases what amounts to local warehouse service on important parts is an Air Force objective. Its present system has slashed delivery schedules up to 20 times... saved taxpayers several billion dollars over the past decade. To improve it further, Douglas has been selected to develop specifications for a comprehensive Material Handling Support System involving better communications, data control, cargo handling and loading, packaging and air terminal design. This is another illustration of the variety of opportunities and assignments open to Douglas engineers and scientists.

Douglas is now seeking qualified engineers, physicists, chemists and mathematicians for programs like the above and other exciting new transport, missile and space projects far into the future. Write to Mr. C. C. LaVene, Douglas Aircraft Company, Inc., Santa Monica, California, Section N.



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AIRCOMB® ■ GROUND SUPPORT EQUIPMENT

Individuals Noteworthy

(Continued from page 8)

Awards to Students

AT THE M.I.T. Awards Convocation in May, the Robert T. Haslam Cup for showing outstanding professional promise in chemical engineering went to Marcellus C. Porter, '60, and the Blonder-Tongue award in electronics went to William L. Black, '61.

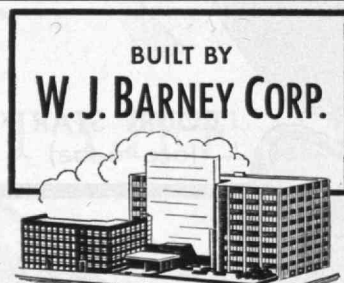
Karlene C. Klages, '61, won the M.I.T. Women's Association Award for academic accomplishment in her junior year, and James P. Gustafson, '63, the Phi Lambda Upsilon freshman chemistry award.

Karl Taylor Compton Awards for promoting high standards of achievement and good citizenship went to Jaime H. De Sola, '60, Thomas H. Farquhar, '60, Linda H. Greiner, '60, Ernest G. Hurst, Jr., '60, Richard E. Kaplan, '60, Richard L. McDowell, '60, James W. Mayo, G, and Joseph A. Verderber, '60.

The Clifford Award for the most outstanding athlete of the year was won by George L. Kirk, '60, and the award for the best manager by Douglas E. Johnson, '61.

Baton Society Award winners were Noel S. Bartlett, '60, Richard M. Davidson, '60, and Gerald M. Litton, '60.

(Continued on page 72)



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Alton Lee Craft, Architect

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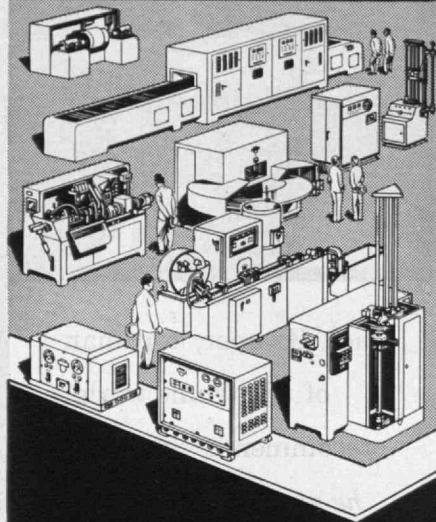
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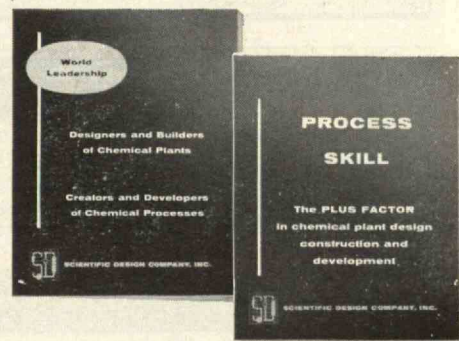


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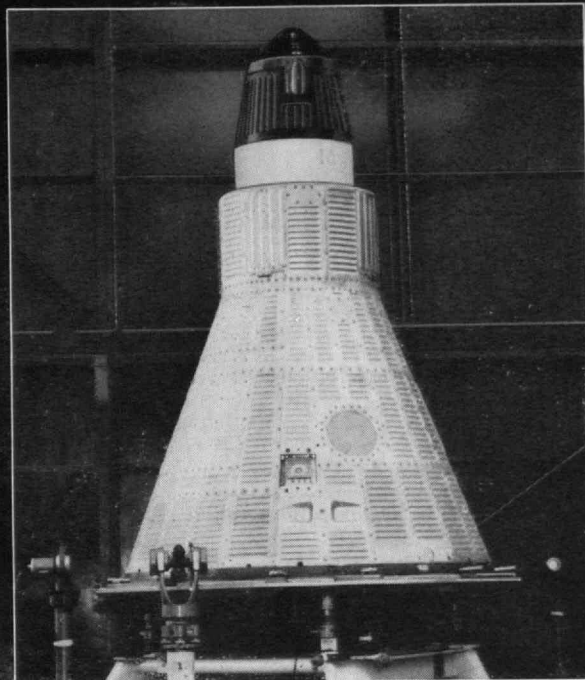
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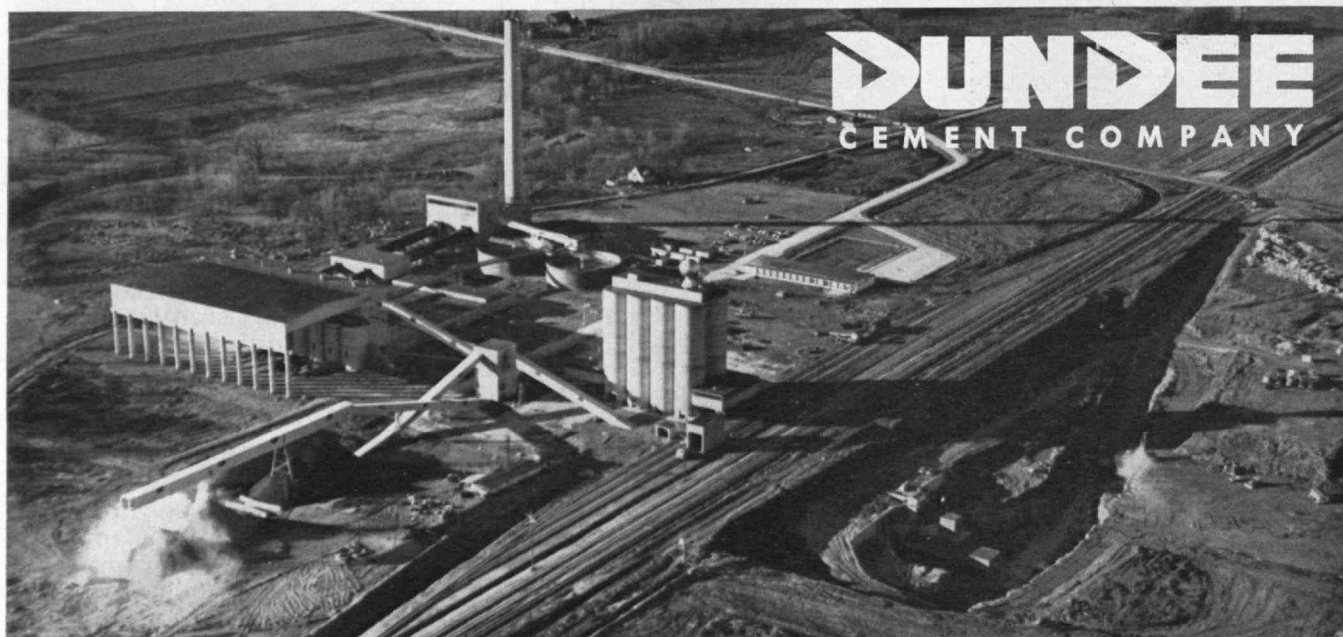
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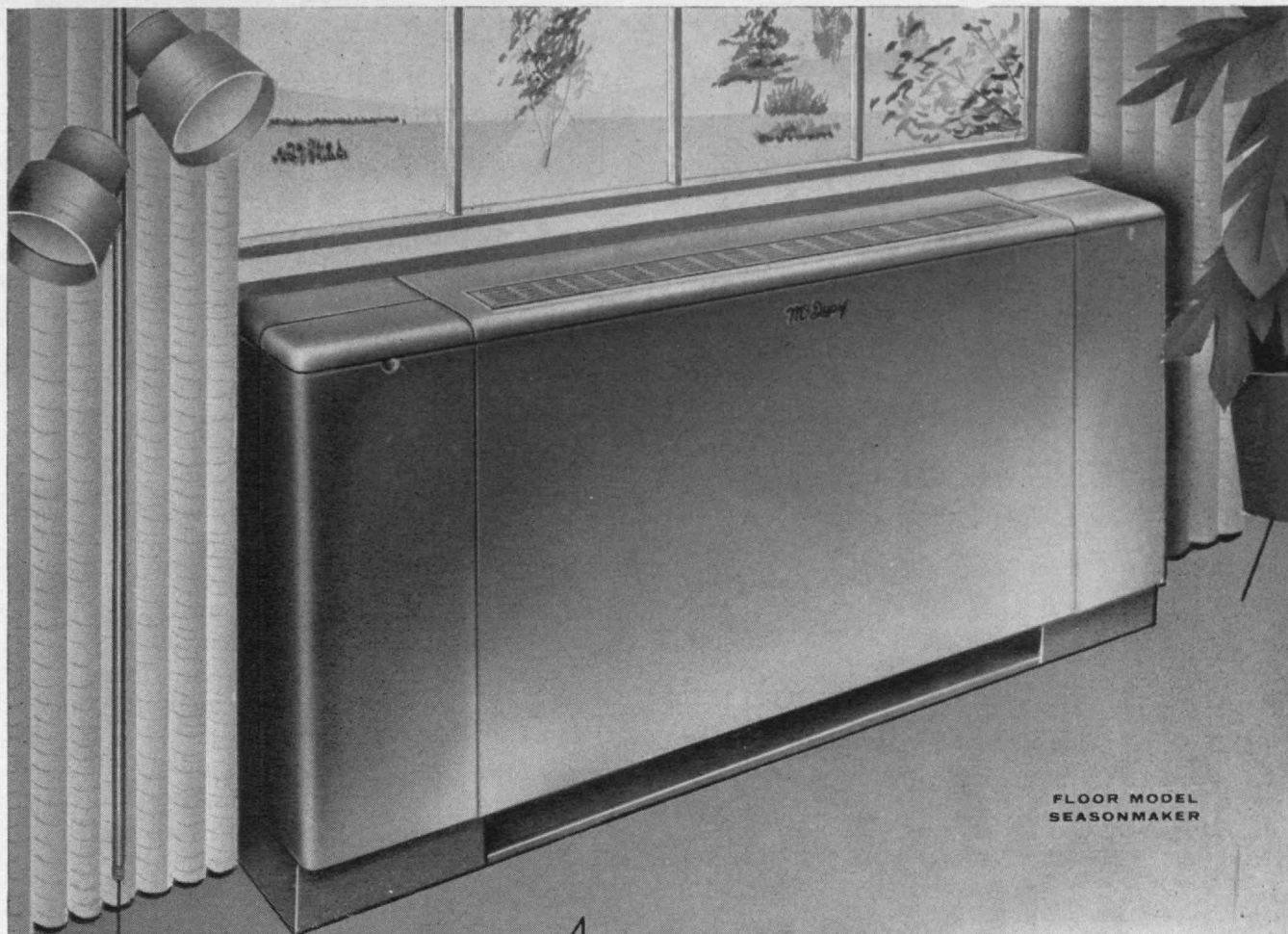
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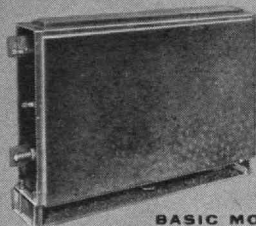
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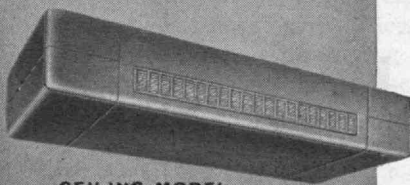
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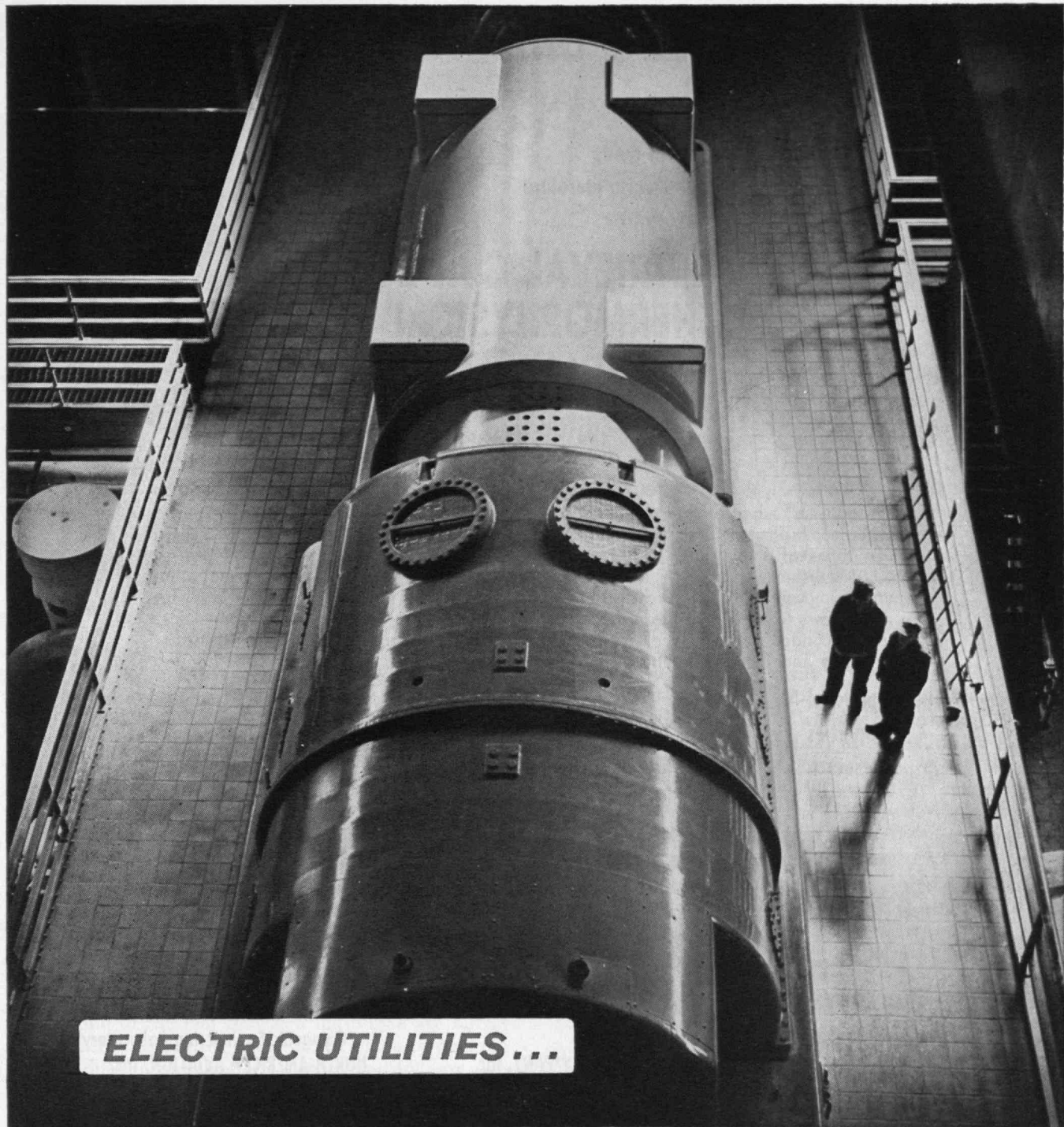
One of today's major technological challenges is the development of systems and equipment which can handle automatically and effectively the vast amounts of information accumulating daily in all spheres of human activity ranging from registering real estate titles and filing medical X-rays to processing aerial reconnaissance photographs and, perhaps one day, the operation of a world security system. In this issue of TECHNOLOGY REVIEW, M.I.T. presents a series of progress reports on the mechanical means of handling and transmitting data. Itek, with its concept of Information Technology, is pioneering in this field. Since its founding in 1957, the Company has dedicated the outstanding capabilities of its staff of scientists and engineers to the practical application of the most advanced concepts of communications theory. Today, by combining their talents in research and development with the Company's systems development groups and precision manufacturing facilities, Itek is translating these concepts into useful information processing systems. To carry forward this effort, Itek is blending 30 or more scientific and technical disciplines.

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TR

Trend Of Affairs



A \$5,000,000 Grant For Basic Research

THE ALFRED P. SLOAN FOUNDATION announced in May a grant of five million dollars to M.I.T. for basic research in the physical sciences. A statement issued by Alfred P. Sloan, Jr., '95, President of the foundation and Honorary Chairman of the Institute's Second Century Fund, explained the purpose of the grant, and the foundation's hopes, in these words:

"The Alfred P. Sloan Foundation has long had a major interest in encouraging a higher level of basic research in the physical sciences in the United States. This grant to the Massachusetts Institute of Technology is a further expression of this purpose. The foundation is aware that a strong basic research program, as an essential part of the education of scientists and engineers, is one of the major objectives of the Massachusetts Institute of Technology as it moves forward on a widened front to meet the nation's critical needs for greater creativity and strength in its science and engineering.

"The significance of basic research in all areas of science is so generally recognized as the foundation of all technical progress that it needs no further elaboration. I believe it to be equally true that there is a recognition of the fact that as a nation we are not as aggressively prosecuting the concept of basic research as we should in our own self-interest and for our own protection. Perhaps this is understandable, for basic research might be defined as a quest for knowledge for knowledge's sake. In other words, it is an abstract rather than a specific effort.

"I am quite convinced that we must rely largely upon our great universities, technological institutions and other institutions of higher learning to assume to a major degree this very fundamental responsibility.

"They have the time and the talent, and operate in a climate conducive to such an abstract search for knowledge. Hence, the foundation grant to the Massachusetts Institute of Technology is a logical demonstration of that belief.

"Reasoning along the above lines, the foundation in 1955 established a program for the support of basic research in the physical sciences which offers certain unique features. The program makes grants to individual scientists associated with our educational and technological institutions of higher learning, in sup-

port of individual talent rather than of specific subjects of investigation — people as distinguished from projects. Talent, properly appraised, is free to select its own research from the standpoint of its individual judgment of need and opportunity to stimulate scientific advancement. Such talent is free to alter its course as circumstances indicate. I believe that the concept of supporting basic research within the framework of individual free enterprise under the auspices of our great educational institutions has not only justified itself but will continue to do so as the most productive attack on the problem. We must expand aggressively our efforts to effect a better balance with the need.

"In the case of the grant of five million dollars to M.I.T., the foundation leaves to the discretion of the Institute the manner in which the fund will be expended. If the Institute elects to do so, it may expend the principal of the fund. As a matter of fact, the foundation so recommends because it believes it is important to proceed as rapidly as possible to strengthen and expand basic research in American universities. The foundation also includes research within the M.I.T. School of Engineering when it is clearly basic research, and likewise is mindful of the growing applications of the physical sciences to biology and expects that the use of the fund will include research in these combined fields.

"It is my hope that this grant to M.I.T. will stimulate other private sources of funds to make available to American universities unrestricted basic research funds."

For many years the Sloan Foundation and Mr. Sloan have been contributing generously to the support of research and education at M.I.T., particularly in the School of Industrial Management.

Mr. Sloan, who completed the four-year course at the Institute in three years, and was the youngest member of his class, pioneered in the American auto industry and became president and chairman of the General Motors Corporation, of which he is now honorary chairman.

"We are most grateful to the foundation for this magnificent grant," President Julius A. Stratton, '23, commented when this latest grant was announced.

"Since the grant is not restricted, it imparts a flexibility to the Institute's program which cannot be supplied by any other means. Such support permits the scholar to search out his own way in fields of investigation where no one has been before, where no specific end is in sight."

McDermott Scholarships In the Earth Sciences

A SECOND large gift to M.I.T. announced in May was one exceeding \$1,250,000 (the market value of 6,000 shares of stock in Texas Instruments Incorporated) from Mr. and Mrs. Eugene McDermott, of Dallas, Texas. This was the largest gift for scholarships ever received by the Institute, and the scholarships will be awarded to students from Texas or other states of the Southwest, with preference given to those who wish to study the earth sciences—geology, geophysics, meteorology, and oceanography—or allied fields.

Mr. McDermott was graduated from Stevens Institute of Technology and was a co-founder with Cecil H. Green, '23, of Texas Instruments, a leading international electronics company engaged in diversified activities, including the design and manufacture of electromechanical systems, transistors and other semiconductor devices, clad metal products, thermostatic and electric controls, and nuclear fuel components. He is now chairman of the executive committee of Texas Instruments.

Before this company was formed, he worked for the Goodyear Rubber Company and Western Electric Company and received his master of arts degree in physics at Columbia University. In 1925, he participated in the founding of the Geophysical Research Corporation, and five years later he was a co-founder of Geophysical Service Inc., the company from which Texas Instruments evolved. He participated during those years in the development of geophysical exploration techniques that are still predominant and considered the most reliable means of locating petroleum deposits. He has long been a member of the key management of GSI and TI, having served as president for a decade and chairman of the board for a decade.

Mr. and Mrs. McDermott also have shown their interest in education in many ways during their more than 30 years' residence in Texas. He was president of St. Mark's School for Boys in Dallas from 1945 to 1955, and continues as a member of its board of trustees. He is a trustee, too, of the Graduate Research Center of Dallas, of which he was a co-founder; a member of the executive committee of the board of trustees of the Texas Research Foundation; a member of the board of trustees of the Hockaday School and the Southwestern Medical Foundation; and a member of the Visiting Committee of the Physics Department at M.I.T. Mr. McDermott also is a past president of the Society for Exploration Geophysicists, a member of a number of leading scientific societies, and a member of such cultural institutions as the Dallas Art Museum and the Dallas Theater Center.

Expressing M.I.T.'s gratefulness for "this most generous and timely gift," President Julius A. Stratton, '23, of the Institute, commented:

"It comes at a time when the Institute is placing increased emphasis on the earth sciences, a field of urgent importance to the world's future. And although M.I.T. is a national and, indeed, an interna-



Eugene McDermott (right) discussed plans for scholarships for students from southwestern states with Dr. Stratton.

tional institution, we wish to encourage more qualified students to apply from the Southwest, an important and growing part of the country.

"The gift recognizes M.I.T.'s prime concern for the education of undergraduates. In these times of steadily rising costs, our aim is that no qualified student be denied the opportunity of an M.I.T. education because of limited financial circumstances. Increased student aid is one of the major objectives of M.I.T. as it moves forward on a wider front to meet the nation's critical needs in science and engineering. The McDermott Scholarships, made possible by this permanent fund, will help us realize this objective."

The Eugene and Margaret McDermott Scholarships are to be made to men and women "of high character, sound personality, leadership potential, and academic promise." Stipends will range from \$200 for students with high qualifications but no financial need to \$2,500 for those with limited means. Starting immediately, about two dozen scholarships will be awarded to students from the Southwest who are now at M.I.T. In future years it is expected that a dozen or more scholarships will be given to incoming freshmen each fall, so that there always will be about 50 McDermott scholars at the Institute.

"We are motivated in making this gift," Mr. and Mrs. McDermott said, "by a desire to give young men and women of Texas and the Southwest opportunities to receive an education of the highest standards, together with a broadening of experience and perspective, such as attendance at M.I.T. affords. Upon returning after graduation to the Southwest, either as educators or participants in industry, they thus will contribute to the enrichment of this region's economic and cultural life."

It is especially appropriate, Dr. Stratton pointed out, that preference be given to earth science students, since a new earth science building is to be built with funds given to the Institute by Mr. McDermott's longtime associate, Cecil H. Green, '23, and Mrs. Green.

Centennial Ceremonies Come Next Spring

GENERAL CELEBRATION of the Massachusetts Institute of Technology's centennial will begin next fall and continue throughout 1961. The Institute's charter was granted on April 10, 1861, and the period from April 2 to April 10, 1961, will be known as Centennial Week.

A hundred distinguished visitors from around the world will participate in a closed conference on scientific and technological education April 2 to 6, and a three-day series of public meetings devoted to discussion of world problems, both practical and philosophical, will begin on April 7.

Centennial week will culminate in a "birthday party" on the evening of April 8 in the Boston-Cambridge area, and a formal centennial convocation and academic procession will take place on Sunday, April 9. It will be followed by a centennial concert in Kresge Auditorium.

Dean John E. Burchard, '23, of the School of Humanities and Social Science, is chairman of the Committee on the Centennial Celebration, and its members are Francis Bitter, Walter H. Gale, '29, Peter R. Gray, '61, Charles P. Kindleberger, Roy Lamson, Elting E. Morison, Philip M. Morse, Walter A. Rosenblith, Ascher H. Shapiro, '38, and Arthur L. Singer, Jr. The Centennial Week conference is being planned by a committee consisting of Professors Rosenblith, Shapiro, and Max F. Millikan, and Dean Howard W. Johnson, with Professor Walter G. Whitman, '17, as chairman.

In conjunction with Centennial Week, the Institute will issue a Centennial Album of important music that has been played or recorded at M.I.T., a Centennial Essay on education, and a traveling exhibit of photographs illustrating the influence of engineering on architecture during the last century.

National attention also will be drawn to the Insti-

tute by a series of six one-hour television programs scheduled to be presented this fall and in 1961.

An official Faculty party is being planned, to be held in May, 1961, and student organizations are planning additional activities on the campus during the year.

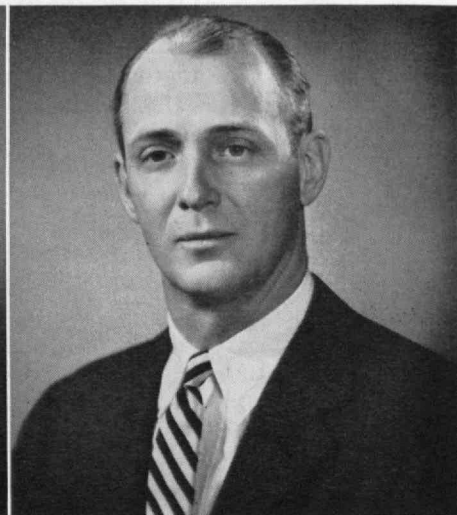
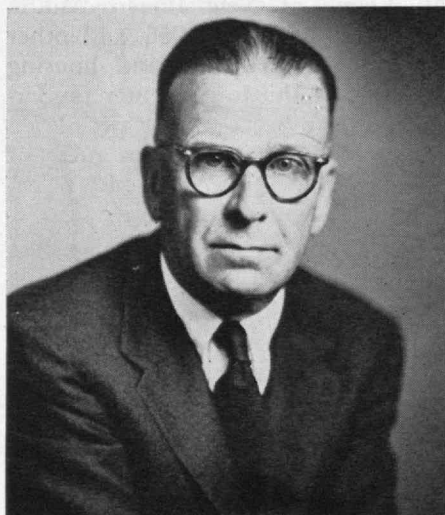
Reports to the Council

THE INSTITUTE'S PLANS for its second century, and achievements thus far with the nuclear reactor, were described at the 346th meeting of the M.I.T. Alumni Council on May 23 in the Faculty Club. President Edward J. Hanley, '24, presided, and the speakers were the Institute's President, Julius A. Stratton, '23; the chairman of the Second Century Fund, John J. Wilson, '29; and the director of the reactor, Professor Theos J. Thompson.

Dr. Stratton said developments now planned are comparable in importance to the Institute's move from Boston to Cambridge in 1916, and reviewed in detail the needs which will be met by the Second Century Fund. Mr. Wilson described the organization being set up to solicit funds next fall and during the centennial year. The Alumni Fund will be continued as a direct mail campaign, he announced, and in the case of reunion classes all gifts to the Second Century Fund will be credited to the donors' classes.

Reporting on the first two years of operation of the nuclear reactor in Cambridge, Dr. Thompson emphasized the sensitivity of the radiation monitoring system, the care taken in handling the heavy water, and the variety of fundamental studies now being pursued with the reactor's help. These include studies of transistor materials, meteorites, and fuel elements for other reactors.

The Secretary, Donald P. Severance, '38, reported that the Executive Committee had approved a budget of \$115,108 for the Alumni Association's next fiscal year; and H. E. Lobdell, '17, Executive Vice-president, reported regarding the Association's membership and current activities.

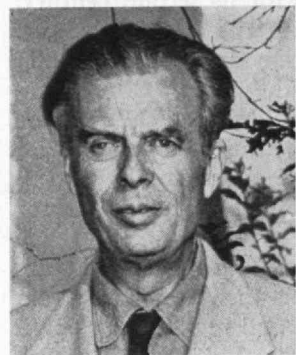


NATIONAL CHAIRMANSHIPS of the \$66,000,000 Second Century Fund for M.I.T. have been accepted by (from left to right) Mervin J. Kelly, former President of Bell Telephone Laboratories; Walter J. Beadle, '17, a director and former Vice-president of E. I. du Pont de Nemours and

Company, and Philip H. Peters, '37, Vice-president of John Hancock Mutual Life Insurance Company. Dr. Kelly will head the corporation leadership gifts committee; Mr. Beadle, the individual leadership gifts committee, and Mr. Peters the area organization.

Aldous Huxley Named Visiting Professor

THE AUTHOR of *Brave New World* and many other novels, essays, and other works, Aldous Huxley will be a Visiting Professor of Humanities at M.I.T.



next fall and participate in exercises marking the centennial of the Institute next spring.

Mr. Huxley, who is now 66 and resides in California, is a grandson of the great biologist Thomas H. Huxley, a grandnephew of Matthew Arnold, and a brother of Julian Hux-

ley. Educated at Eton and Oxford, he has traveled extensively and been a major figure for many years in English literature.

At M.I.T., he will conduct the Humanities Senior Seminar and give a series of lectures on the nature of man, in which he will discuss art and religion "and finally the prospect of actualizing the latent potentialities which in most people remain unanswered," Mr. Huxley has written.

"Mr. Huxley's incisive pen, supported by a wide knowledge of science and philosophy, has made him a forceful critic of present-day social mores," Dean John E. Burchard, '23, pointed out when Mr. Huxley's plans were announced. "In coming to M.I.T., he will give the Cambridge community a rare occasion to discuss the directions of 20th Century society and to assess the social implications of science and technology."

A New Neighbor

THE OPERATIONS EVALUATION Group, managed under contract by M.I.T. since 1945, has created a new Applied Science Division which will be located in Cambridge near the Institute. The group's headquarters are in Washington, and it performs operations research for the Department of the Navy, the Chief of Naval Operations, and the forces afloat.

Being in Cambridge will permit the Applied Science Division to maintain close and continuous liaison with the M.I.T. Faculty and research laboratories. A faculty committee, headed by Professor Philip M. Morse, will guide and integrate the division with other Institute activities.

Hugh J. Miser, who until recently headed the Operational Sciences Laboratory of the Research Triangle Institute in Durham, N.C., will head the new Applied Science Division. He was a founding member of the Operations Research Society of America and has been its secretary since 1958.

One of the first tasks of the new division is to be a study of naval communications and command and control procedures. This will be undertaken this summer at Endicott House in Dedham by about 30 distinguished scientists from university faculties, research laboratories, and industry.

Our Changing Cities

THE MANY ASPECTS — economic, political, and social — of urban renewal efforts were discussed for two days this spring at a seminar arranged by the Joint Center for Urban Studies of M.I.T. and Harvard, for the New England Society of Newspaper Editors.

Cities of the future, it was suggested, may be quite different from those we have known. As the nation relies more largely on imports, for example, new kinds of ports may appear; as travel becomes easier between cities, fewer branch offices may be needed; and as industry shifts, some of our cities may be liquidated gradually rather than enlarged.

Urban renewal proposals should be judged, said Professor John T. Howard, '35, Head of the M.I.T. Department of City and Regional Planning, by the objectives of a comprehensive plan. Such a plan should be based on an understanding of how things are, the trends, and the range of choices open to the people of a city or region. Comprehensive planning should not only provide a picture of future development of the area, but deal with the programming of changes and the instruments of change. Urban renewal is but one of these instruments.

Repeatedly, the consequences of displacing people, and human responses to renewal efforts, were stressed. Slum clearance was portrayed as a primitive approach to the improvement of urban housing. A visiting M.I.T. professor, Charles Abrams, who formerly was chairman of the New York State Commission Against Discrimination, spoke of the displacement of minority groups by slum clearance as a form of discrimination. "A slum is a condition," he emphasized, "and you should clear a slum by clearing the condition, not the buildings." Increasing the supply of housing for people who are doubled up should be given priority, he contended, over slum clearance.

Mayor Richard C. Lee of New Haven, Commissioner David M. Walker of the Urban Renewal Administration in Washington, Development Administrator Edward M. Logue of New Haven, M.I.T. Planning Officer Malcolm D. Rivkin, '56, and other authorities on government, financing, and housing problems joined the staff of the Joint Center for Urban Studies in outlining the problems for two dozen newspapermen, who attended the seminar as guests of the Nieman Foundation. Francis E. Wylie, M.I.T. Director of Public Relations, helped arrange it.

Computers and Ourselves

PUTTING computers to use in studying the brain and other aspects of the nervous system was the subject of a conference sponsored by the National Science Foundation at M.I.T. this spring.

"Within the last few years," Professor Walter A. Rosenblith, chairman of the organizing committee, explained, "electronic computers have started to have an impact upon experimental studies of the nervous system. However, few neurophysiologists or behavioral scientists have made computers part of their laboratory equipment. We have now entered a period in which an increasing number of research workers feel that they could make excellent use of a computer facility."

The Institute Graduates 1,148

Speakers discuss the nation's setbacks with 'animated moderation' at M.I.T.'s annual commencement ceremony

THE Massachusetts Institute of Technology gave 1,232 degrees to 1,148 students at this year's graduation exercises in the Rockwell Cage on June 10, a beautiful day in Cambridge.

Both Edwin H. Land, President of the Polaroid Corporation, who gave the commencement address (it is reported on the next page), and James R. Killian, Jr., '26, Chairman of the M.I.T. Corporation, who gave the charge to the graduates, mentioned the U-2 lost in Russia and stressed the challenges facing the Class of 1960.

Dr. Killian recalled Walter Bagehot's persuasive argument for "government by discussion" provided that the discussion is conducted with "animated moderation." Mr. Khrushchev, he commented, clearly has not read Bagehot, and "one cannot visit some of the newly independent democracies of the world without being struck by how much they have embraced government by discussion and how little they have yet achieved the habit of animated moderation."

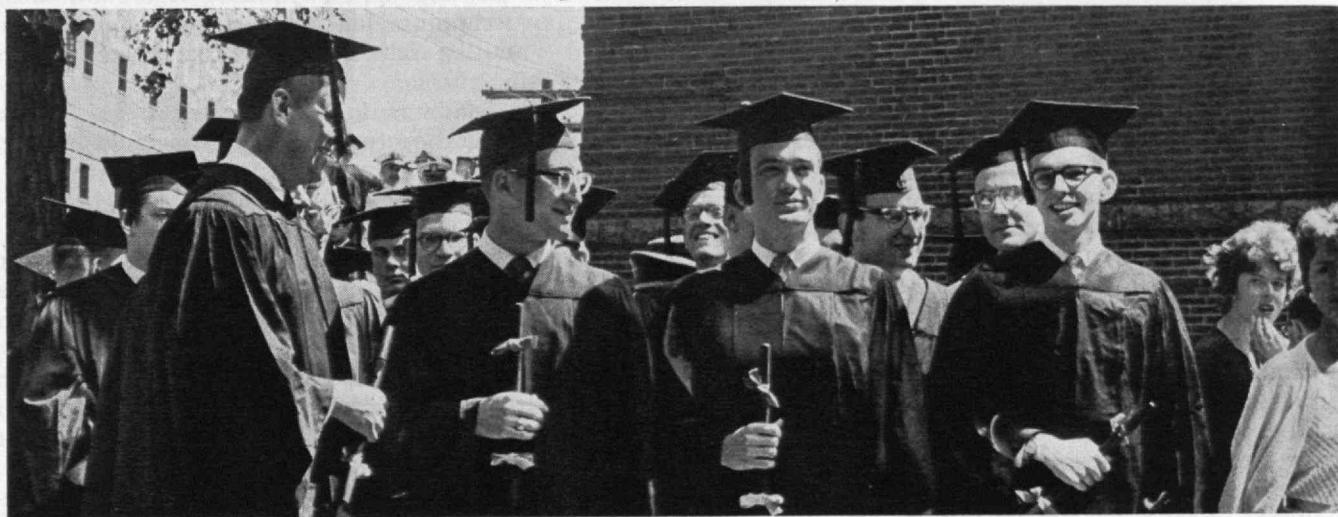
(Continued on page 66)



Addressing the Class of 1960 as spokesman for the Class of 1910, Dudley Clapp chose metre "to control the volume neater" and delighted the Institute's newest Alumni with such lines as:

*To suggest you could teach a machine to think
Would have driven OUR physics professors to drink . . .*

*Just allow me to warn you: Your studies aren't through
What you've learned is not all, and won't always be true.*



Officers of the Class of 1960 who led the graduates in the procession were (left to right): John B. Stevenson, Secre-

tary; Richard E. Kaplan, President; Ernest G. Hurst, Jr., Vice-president; and Richard L. McDowell, Treasurer.

On Entering the Majestic Stage Of the American Revolution

*An appeal for the engineering profession to design a
new kind of industry for people who vary in abilities*

The Commencement Address

BY EDWIN H. LAND

President, Polaroid Corporation

THE NEXT FIVE YEARS could be crucial in deciding the fate of the United States and of all Western culture, and the group in this graduating class today constitutes a significant portion of the men and women who will determine which way the crisis will go.

It is all very well to speak of the noble purpose expressed when this country was founded, the purpose of creating free men. It is all very well to speak of the noble purpose of this institution, the creation of men who excel. And on the other hand, it is prudent to note that the great mass of men are not quite sure of what to do with their freedom, and that the small mass of scholars are not quite sure of where to apply their excellence. One can also observe that whereas our potential enemies are united within themselves by two simple missions, the mission to survive and the mission to expand, we have long since satisfied our needs for material survival and we have no further appetite for geographical expansion.

It seems unlikely that a race which over millions of years has solved the most terrifying problems would be incompetent to solve the problem of mass boredom and mental stultification. My own faith is that left to its own devices America would finally slough off any bad consequences of its embarrassment of riches. But America is obviously not going to be left to its own devices. It is going to be insulted, harassed, and beleaguered. It is going to be trapped in its boredom, and it is going to be trapped in its waste of human talent. It cannot escape from the trap by the atavistic outlet of war on account of the hydrogen bomb, and it cannot escape from the trap through Machiavellian intrigue or the more modern, direct political nastiness. These latter outlets are blocked for the United States because it has become all in all a mature, decent, truth-telling culture.

However the President of the United States and the Secretary of State may try to rationalize the recent telling of the truth, the fascinating fact is that whatever the consequences, they *had* to tell the truth. They had to tell the truth because the heavy hand of honesty—reaching out through thousands of years of that spiritual, intellectual growth which is science at its best—fell upon their shoulders, made them its

servants, made them suddenly know that the fate of the world for all time depended on speaking truth at that moment.

They recognized intuitively that this was the instant in which the myth of the state could be shattered; that what is in good conscience for an individual is in good conscience for a nation; that there is no place in the Western mind for the dogma that a nation, because it serves many individuals, may and should engage in deceptions that would be repugnant to these individuals separately.

This was the moment in which America said: Henceforth for a nation to be as great as its individuals it must be as honest as they are. It was not a question of the ineptitude that might be revealed by the truth, or the possible damage that the whole program of negotiation for peace may have suffered. It was not a question of whether a possible pro-Western group in Russia might be destroyed by the truth; and it was not a question of whether with foresight that particular crisis could have been avoided. The issue was this: Does an American, when he represents all Americans, have to tell the truth at any cost? The answer is yes, and the consequence of the answer is that our techniques for influencing the rest of the world cannot be rich and flexible like the techniques of our competitors.

We can be dramatic, even theatrical; we can be persuasive; but the message we are telling must be true.

* * *

CAN WE WIN the world with the present truth about ourselves? I think the answer is no, in spite of the brilliant success of the American revolution up to this point.

Having recognized that we have no choice but to tell the truth about ourselves, because telling the truth is a spiritual necessity to us, let us examine the present structure of that truth.

Let me hasten to say that the astonishing, unpredictable, and curious system we have worked out for limiting the power of all men, for keeping the great mass of people comfortable and comforted, for stimu-



Seated behind Dr. Land, facing the Class of 1960, were members of the Institute Faculty, Corporation, and Class of 1910.

lating a handful of brilliant men to strenuous activity of breath-taking excellence — this system which we have shaped in so few decades — is probably the best known to mankind so far. It is a fascinating bit of historical irony that it probably cannot survive unless it is rebuilt immediately to eliminate defects which we would undoubtedly outgrow, but which we cannot tolerate at this time if we are to become the showpiece for the virtues of individualism.

What will not bear inspection is the waste of ability and talent, and waste until now has been a necessary consequence of our particular technique for generating an intellectual elite. We believe in schools for everybody. We believe, although we have far from succeeded in providing it, in good teaching for everybody. We believe in high school, and we soon will believe in college, for everybody; and here we close our eyes to our dominant credo, which is the major source of our power and effectiveness, and which is also the source of most of our defects. This credo is that the state, whether in national or local form, should provide educational opportunity for everybody, and that within the framework of that opportunity the good man will go ahead and the inferior man will fall behind. We are absolutely convinced of the operational validity of this kind of dichotomy, and so we select and praise and select and praise, and cause the selected to compete with each other and the winners to compete with the winners, and we select and we praise. Thus we generate our elite, whether they be scientists or humanists (to my mind a trivial difference compared to the great difference between both of them and the unselected). We teach them that if they win out in their extended competition with the rest of the elite they are sure to make that unique contribution to human insight which will justify the decades of support provided by the society around them. The system works. Here and there, and often enough, there emerges from the apex of the struggling pyramid a man with such tremendous insight, such mastery of his field, such competence for innovation that his work sets the whole country, and indeed the

world, well ahead of where it would have been without that man in that field.

We believe in excellence and we have learned to produce it; through its development, suddenly we find ourselves in many fields ahead of the rest of the world and in nearly every field of science far ahead of the Russians.

The price we have paid up until now for excellence is devastating damage all up and down the line, at the one extreme to the delinquents of Blackboard Jungle, at the other extreme to a very considerable percentage of the graduating classes of our great universities. Our society abandons the incompetent and frustrates the talented. Consequently we confine millions to a life of dull mediocrity while we set handfuls of the utterly brilliant free to contribute. The genuine freedom of this handful has resulted in invaluable contributions which have kept us ahead up until now.

We have chosen excellence in terms of accomplishments in the domain of the unknown in preference to perfection in the domain of the known. But perfection in the domain of the known could involve all of our millions of merely talented people and all of our tens of millions of merely competent people. Our kind of free society cultivates the excellence that leads to fundamental discoveries, but prohibits the discipline that leads to mass involvement in mere perfection. Thus it is excellence that makes possible a fundamental weapon like the atom bomb; it is perfection that makes possible the Russian rockets — the involving of masses of people in the perfection of the known. What a strange sight it is to see emerging a world struggle between excellence and perfection!

The question we should face today is this: How can we continue to develop an intellectual elite from which brilliant men will emerge without sacrificing the rest of the country to a life of routine and mediocrity? In the solution of this problem I see little prospect of persuading our intellectual elite — deeply involved in their own pursuits, long since conditioned to the belief that their own good work is adequate social contribution — I see no prospect of involving

these men in extended undertakings lying outside their special fields. Furthermore, it is not clear that it would be desirable to do so.

Yet if we could find a way to use all of our merely talented people, in the course of that use a considerable number of them might develop into men as brilliant as our present handful. We cannot know how many, through shyness, lack of good fortune, or genuine lack of opportunity for using their known talent, are never allowed by circumstance to discover the full stretch of their ability. Indeed, we might well hope that the mere enthusiastic use of known good ability would convert the good man into the truly superior.

I started today by saying that the direction this crisis will take will be determined by those of you who are sitting here, and will be determined during the next five years. I say this because I believe that the government as a whole, the one political party or the other, the universities as such — all of these institutions and parties, however well they understand the problems we have here been discussing — lack in our society, as it stands today, any mechanism for altering the society to correct the defects we have been noting. Correction does not depend upon insight or good will or determination. Correction, in my opinion, is an engineering task to be undertaken as a new aspect of the engineering life.

Let me give one example: For some time it has seemed to me that the second great product of industry should be the deeply rewarding working life for every man. It has seemed to me that the next stage in raising our standard of living involves not the increase of material holdings, or the amount of food and clothing, but the conversion of the everyday working life into one which develops all of the talents of the worker, making him into artist, artisan, student, and producer. It has seemed to me the time has come in industry for a planned relationship between machines and people in which the machines would work for people, instead of having people work for machines in the unplanned and accidental relationship that exists today.

Now, designing this kind of factory, if it is going to produce quantity and quality at low cost, and at the same time produce a joyous and rich life for the occupants of the factory, demands a new kind of engineer and a new kind of engineering training which encompasses all of the substantive components of an education as given today, but which goes far beyond in its demands for insight into human motivation and human reward. Indeed, one can imagine the engineer planning the whole social, educational, and financial structure of a corporation as if he were an architect for corporate life.

This kind of engineer would have to immerse himself in the arts and sciences, would have to live a life of intimate association with all kinds of people in all parts of the world, as preparation for this kind of social architecture, just as it is taken for granted that the architect who designs a building will analogously have known all buildings. Thus one new profession emerges.

The way to avoid having one great planned society, one national planned society, which I think we Americans recognize intuitively as dangerous and for-

eign to our nature, is to have thousands of small planned societies, each being a cultural variant from the others, each being its own kind of experiment in such questions as: What is worth making? How should it be made? How should people gather together to make it? How do we relate people to each other in each of these separate little gatherings? Thus when we say that the engineer is to be the total architect for each of these separate industrial societies we do not mean that the engineer will design them uniformly, for while there will be some great unifying noble principles that will characterize them all, we will expect each to be quite an individualized experiment in the best way of carrying out the separate industrial purposes:

We might tabulate the unifying noble purposes:

1. Sense deep human needs.
2. Review engineering knowledge available to satisfy the needs.
3. Review known science that can be applied.
4. See what scientific gaps need filling.

And along somewhat different lines, how are people to be involved in the exploration for the product, and the design and manufacturing of the product? How does the engineer plan a dynamic interrelationship of people with each other — people with missions, people with machines — so that people are always learning, always growing, steady with a sense of progress, warmly enthusiastic at participating in a future which unfolds day to day with rich intellectual and aesthetic rewards?

My conviction is that it is the part of the engineering profession to design this kind of industry from the ground up; that the present sporadic and rare appearance of such institutions, whose growth is now left to chance, can be replaced by the sure and reliable establishing of such apparently Utopian organizations, once the professional engineer regards this kind of social architecture as just as natural as do our present great architects when they erect a building.

I do not propose to elaborate on other examples of new engineering professions. My own personal conviction is that the best other example is in the field of education from the kindergarten through adult life. It is only when another new engineering profession, the profession of designing techniques of teaching, comes into its own, that an audience such as this will dare face the reality of the statistical failure of our educational system as it stands today. We know that the motivational system we have works for a small percentage of our population. We do not understand the motivational system, and we dare not tamper with it, and indeed we must not tamper with it, until we are ready to approach the total problem with professional competence, determination, and sweep.

* * *

THERE ARE COUNTLESS other areas where we want to preserve the traditionally good, but want also to go on to something new. If we are to bring brilliant men into each of these new areas, we must create a host of new engineering professions directed to these areas, professions within which brilliant men can work out their private careers; for the secret of new force in American life lies not in the cross fire of political



Dr. Stratton presented degrees as deans called the graduates' names; an open air reception followed the exercises.

criticism, not in the expansion of governmental power, not in the persuasion of effective individuals to be men of good will donating their services outside of their private careers—it lies rather in the creation of careers within each of these significant new areas. And these careers can exist only in the context of appropriate professions directed to each of these domains.

I do not want to frighten you with the thought of myriad new, entrenched professions. Each should last only for a decade or two until it has served its purpose. I am sure many of the graduating class are impatient at this moment with the idea of creating yet another institutional activity. I assure you that I, as much as any one of you, regard "man as the end, not the means," and that more than any of you I think of institutions and professions as designed to be the servants of each of us and the masters of none of us. But this I tell you from a lifetime of experience: No brilliant man is free in our society to serve our society for long except in the framework of his own highly personalized creative career. Therefore, if we wish to grow in international stature by developing new areas of social effectiveness we must provide for the scientist-engineer, who is to be the new architect of our culture, new professional contexts for his personal growth. If we do, I am confident that we will move rapidly into the next great stage of the American revolution—the stage in which millions will be alert intellectually, incessantly creative, highly individualized, happily co-operative.



The Almost Chosen People

A philosopher traces the spiritual crisis of the West to an imbalance between prophetic and ontological faith

The M.I.T. Baccalaureate Address

BY HUSTON SMITH

Professor of Philosophy

IN ASKING myself where we stand in this American moment I have found my mind repeatedly returning in recent months to a phrase, or rather an image, suggested by Abraham Lincoln in a New Jersey speech while on his way to his Inauguration. Referring to Parson Weems's *Life of Washington* which he had read in his boyhood, and particularly to its moving accounts of the Revolutionary struggle for "something that held out a great promise to all the people of the world for all time to come," Lincoln went on to accept his approaching task with these words:

"I shall be most happy indeed if I shall be an humble instrument in the hands of the Almighty, and of this, his almost chosen people, for perpetuating the object of that great struggle."

"The almost chosen people." Is not the image singularly apt? For surely in some manner of speaking we *have* been chosen. We were "chosen" geographically: handed a richly endowed and virgin continent sheltered by two wide oceans behind which we might build as our hearts desired with a minimum of outside interference. We were "chosen" historically: born coeval with a science which was tailor-made to turn wilderness into wonderland, and with a political self-consciousness which had learned the ways of tyranny and was determined not to let them be repeated here. We were even "chosen" religiously. Having experienced the oppression that could come from formal alliance between God and Caesar, our Founding Fathers wisely built into the Constitution the saving principle of separation between church and state.

But now comes the point. The

image of a chosen people comes from the Bible, and textual studies have repeatedly shown that election always appears in the Bible as a polar concept: invariably it is correlated with responsibility. And this is where the "almost" comes in. Confronted as a people with virtually providential opportunities, how have we responded?

Not altogether badly. *Materially* we have built a civilization which is not only the wonder of the world but stands poised to explode into a truly fantastic abundance. The authoritative Committee for Economic Development has predicted that, if war can be avoided, within 15 years the average standard of living of all American families should be higher than the upper middle class average today, from which the Twentieth Century Fund has gone on to estimate that within a century an ordinary factory worker should be enjoying the equivalent of a \$20,000-a-year income, after taxes, while working four days a week. *Politically*, too, the picture is impressive: we have created a context of freedom which, while not perfect, is nevertheless remarkable. A Martin Luther King can be arrested on a technicality and a Willard Uphaus is in jail today for reasons of conscience, but without excusing these travesties we must remember that these are individuals, not multitudes, and that their treatment arouses storms of indignation. Even *culturally* the picture is not altogether discouraging. In the years between 1870 and 1950 our population increased fourfold; our high school enrollment increased eightyfold.

Looking back at the past, I am not depressed. While I see no reason to assume that we have done

better with our opportunities than have other peoples with theirs, neither have we done worse.

* * *

It's the present that troubles. On accepting the Nobel Prize, Camus pointed out that whereas probably every preceding generation has felt itself charged with remaking the world, our task is greater: to keep the world from destroying itself. Yet at precisely the moment when unparalleled vigilance is required of us, it seems to be on the decline. The Gillespie-Allport study shows that compared with students of other lands, American students are concerned more with "privatism" than with their nation's future or even the development of their latent potentialities. Of their teachers David Riesman writes: "It is my impression that there is far less avid interest in world affairs in the academic community today than in earlier decades, and that such interest as there is exists more intensely among the older than among the younger faculty members." If these are in fact true indices of our student-faculty temper, the observation of a prominent advertising agent whose business is to keep his finger on popular sentiment suggests that they reflect the general mood of our day. "This in America," writes Charles Barton of Batten, Barton, Durstine, and Osborn, "is the high tide of mediocrity, the great era of the goof-off. The land has been enjoying a stampede away from responsibility." Max Lerner concurs: "It is hard not to feel that while America is still on the rising arc of its world power, it is on the descend-

(Continued on page 60)

Communication Research

A new science deals with systems in frogs, men, and new, high-speed computers



Dr. Lettvin spoke for the frog.

COMMUNICATION SCIENCE deals with the special properties that systems achieve as a result of their organization. How it arose and how it is used to study frogs, men, and machines was reported in an Alumni Day symposium at M.I.T.

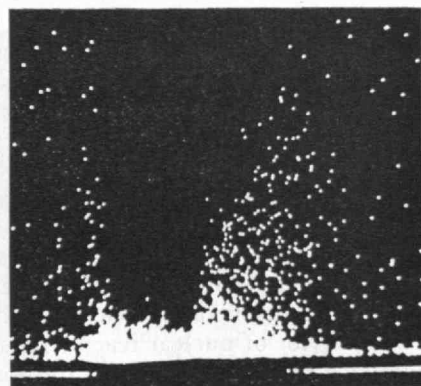
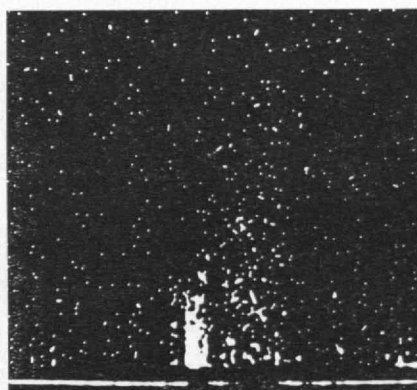
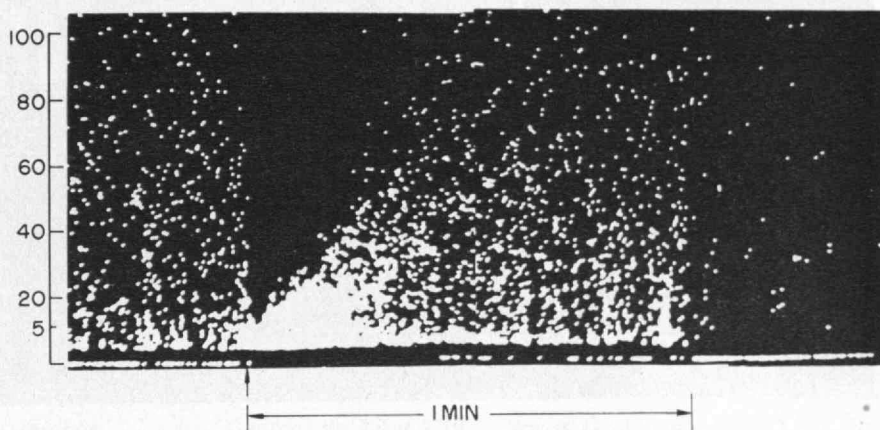
As its moderator, Professor Jerome B. Wiesner, Acting Head of the Department of Electrical Engineering, recalled that communication science began with the study of electrical systems and that Vannevar Bush, '16, Norbert Wiener, and Claude E. Shannon, '40, were pioneers in it. Much remains to be done, he emphasized, to obtain an understanding of neurological processes, perception, learning, and language.

Professor Shannon, who spoke first, pointed out three streams in science and technology: One deals with the collecting and processing of matter, as for food and shelter. Another is concerned with the collecting and utilizing of energy. The third has to do with the collecting, processing, and transporting of information—whether this be by means of matter, as in a book, or energy, as in radio.

The computers built within the last two decades to process information have been used mostly for numerical calculations, but also can work with symbols or words. Professor Shannon believes, nevertheless, that some problems always will be "unreachable by a machine."

Professors Walter A. Rosenblith, Patrick D. Wall, and Jerome Y. Lettvin, '47, then described research regarding communication within living systems.

Certain electrical events in the brain, said Professor Rosenblith, can be analyzed with electronic



Dots in Dr. Wall's oscilloscope photos show nerve impulses detected in a nerve cell of an animal's spinal cord when its skin was pinched (above), touched lightly (left, below) and warmed (right, below).

computers' help. A way has been found, for example, to tell whether a child's auditory apparatus is intact or not before the child can speak. "The technology of weapons systems," he continued, "now can be applied to man's knowledge of himself, his health, and his welfare."

Professor Wall pointed out that the nerve cells of animals translate and conduct coded information, which other cells collect and compare, about physical events. A single human sensory cell, he said, reaches from the toes to the middle of the spinal cord, and conveys information in the form of a series of

pulses when the skin is touched.

Professor Lettvin, finally, explained how a frog sees. Each fiber carrying information to his brain from his eye is connected to hundreds of the million "photocells" in the eye. But the frog does not see things dot by dot, the way a picture is printed in a newspaper. He is more interested in bugs, snakes, and birds' shadows than in the over-all illumination, and most of the fibers in his system carry data about edges and movements indicative of obstacles, bugs, and worrisome things. It is a beautiful system, Professor Lettvin observed, for a frog's small brain.

Alumni Day This Year



ABOUT 1,200 ALUMNI returned to M.I.T. on June 13 for the 85th annual dinner of their Association, and a luncheon in the Great Court at which President Julius A. Stratton, '23, reported:

"Progress in science and engineering has 'gone critical.' . . . What was once a steady flow of knowledge has become a flood threatening to engulf both teacher and student alike."

As examples of Institute activities he cited the engineering analysis of a nuclear engine for rocket propulsion, a powerful computational method for predicting the behavior of nuclear reactor fuels, the development of space navigation systems, the direct conversion of heat into electrical energy, and research in magneto-hydrodynamics which has important implications both for fusion power and for space technology.

But M.I.T.'s primary mission, he emphasized, is the education of students, and "the plain fact of accelerating technological progress" is by necessity influencing its educational plan.

For a number of years, he continued, the Faculty Committee on Undergraduate Policy has been seeking an appropriate balance between freedom and rigidity in the undergraduate curriculum. It recommended this year that students:

- 1) Be asked to indicate when entering M.I.T. which of its five schools they expect to enroll in.
- 2) Still be permitted to enroll in an appropriate course as early as the start of their second year, but not be required to do so until the start of their third year.
- 3) Be allowed to fulfill departmental requirements for graduation in part by taking subjects in the second year that are not general Institute requirements.

Such steps, and Faculty counseling, the President suggested, may enable the Institute to meet the varying requirements of individual students better.

Throughout his discussion of educational policy, he emphasized the interrelationships of science and engineering, the breakdown of departmental lines, and the importance of research as a method both of advancing knowledge and of teaching.

In the School of Science, he pointed out, a single undergraduate curriculum is being developed in the life sciences, and another in the earth sciences. He also mentioned particularly "the growing desire of our physicists to effect a radical revision of their curriculum, especially in the first two years."

In the School of Engineering, he said, a proper balance between theory and practice is being sought, and the Faculty already "is responding magnificently to the opportunities and responsibilities" given to the Institute by the \$9,275,000 grant from the Ford Foundation. "Everything that we shall do under this program," he promised, will be designed to give our students the basic competence and flexibility to deal creatively in important ways with tomorrow's technologies. But as we move to strengthen the scientific base of our engineering curricula, we must take equal pains to develop in our students those attitudes and points of view that distinguish the engineer from the scientist."

He dwelt on the importance of developing judgment, fortitude, and integrity, in his discussion of efforts to improve teaching, and assured the Alumni that "the aim of the Second Century Fund is education."

Construction of the new Burton House dining room is beginning now, Dr. Stratton noted; and this summer, he announced, the Institute will spend \$300,000 on the renovation and improvement of dormitories.

Other outstanding events of the day are reported in words and pictures on the next page; the photo above shows the gathering which preceded the annual dinner.



The Class of '35 held its reunion on the campus.

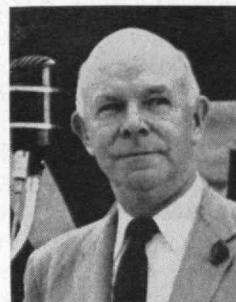
Former students saw old friends, heard about new programs, announced gifts, and made Monday, June 13, a memorable day at the Institute



Gen. Frank F. Bell and Harold C. Manson at 1910's table.



George P. Lunt, '10



Norris G. Abbott, '20



L. M. Beckwith, '35



Edward J. Hanley, '24, and his successor as President of the Alumni Association, Clarence L. A. Wynd, '27 (right).

AT the luncheon in the Great Court, Mr. Lunt announced that the 50-year gift of his class would exceed \$260,000; Mr. Abbott announced that the 40-year gift of his class would be \$88,304.88, and Mr. Beckwith said the 25-year gift of his class would be \$150,000, including \$50,000 for a Class of '35 scholarship. Philip H. Peters, '37, Chairman of the Alumni Day Committee, presided; and Dr. James R. Killian, Jr., '26, Chairman of the Corporation, acknowledged the gifts.

THE Alumni Association's newly elected President, Mr. Wynd, assumed office at the annual banquet after his predecessor, Mr. Hanley, had announced that Alumni Fund contributions this year already exceeded \$625,000. A ballet performance in the Kresge Auditorium concluded the day's festivities.



Talk of Our Times

The Interdependence Of Science and Art

In a widely quoted address to the American Association of Museums, at its 55th annual meeting in Boston on May 25, President Julius A. Stratton, '23, recalled that M.I.T. was founded "to embrace three distinct endeavors: a Society of Arts, a Museum of Arts, and a School of Industrial Science." Using the Institute as a case history, he then commented on "the growing movement towards an abstract intellectualism to be observed in all these fields." He said in part:

THE INSTITUTE was founded on the idea of "Learning by Doing"—an idea, as you well know, that was by no means novel to John Dewey. Much of the "doing" in those early days took place in the laboratory, the shop, and the drafting room. Thus, in many respects the original plan of M.I.T. expressed a revolt from the increasingly sterile forms of the classical curriculum that preceded the sweeping revisions in American universities of the 1870's. Pragmatic Americans of that generation responded eagerly to this new emphasis upon the experimental, the visual, and upon tangible ties with the realities of our physical universe. Many of the great innovations initiated in 1869 by Charles Eliot following his return to Harvard from M.I.T. were undertaken in this identical spirit.

What, now, has happened to this spirit, this philosophy of learning over the intervening century? Despite all the current emphasis upon graduate research, one gains the clear impression in looking back over the years that there has been a steady decrease in the time exacted from an undergraduate in the experiments of the laboratory and a more than compensating increase in hours devoted to the theoretical discussions of the classroom. In making this observation, I am speaking no longer of M.I.T. alone, but am pointing out a trend that is basic to education in science and engineering everywhere in the United States.

It is easy to trace through recent decades the inroads on time formerly allotted to drafting and other practical exercises, and easy to understand the reasons. These encroachments have been offset by a notable rise in the standards set for mathematics, and quite properly by a growing emphasis upon basic theory in the undergraduate years. This shifting emphasis from the empirical towards the theoretical and abstract has been an essential consequence of a growing maturity in the ideals of American technical education, and it reflects the enormous complexity of contemporary science and engineering. The simple, intuitive methods of attack upon which the engineer, for example, was once accustomed to rely are now wholly inadequate. Only a generation ago a student of engineering had little need for mathematical baggage beyond trigo-

nometry and the most elementary facts of calculus. Today there is scarcely any branch of mathematics, however abstruse, that does not bear directly upon some important group of engineering problems. The process begins at the top and works down. It is first at the graduate level that we find use of the new mathematical tools and the latest abstractions of physical problems. But quickly the new learning and the analytical approach filter down into the undergraduate years, and today they are even exerting a force on the secondary schools. These sophisticated modern techniques, as you would expect—and this is the fact I wish to stress—appeal strongly to our brightest students and consequently strongly influence their intellectual temper and attitude.

Powers of Perception

It will seem strange to some that I, a theoretical physicist by training and by devotion, should voice alarm at this modern trend to the analytical and the abstract. It may seem even more surprising in light of the fact that over the years I have worked increasingly to lift the intellectual and professional standards of engineering education. My concern is that in the process of assuring for the student a mastery of mathematical analysis, we fail to develop equally his other powers of perception. As an undergraduate I spent hours in the drafting room, in shop and foundry, and in various laboratories. I also enjoyed a great variety of industrial experiences, a privilege that will become increasingly difficult for students in the future. In one sense much of this time was time wasted, because I have never since done any drafting, have never poured any more molten metal in a hole in the sand, nor to my regret spent time with a lathe. But, in retrospect, it is clear that those hours gave a balance and a perspective to my studies and to my entire outlook. The particular practical courses of my day were perhaps ill adapted to modern needs. They contributed certainly to the stigma of vocationalism in the education of the engineer, and quite properly they have been largely discarded. Nevertheless, they filled a purpose, and it is essential that in some way we find a better means of accomplishing this same end.

Only through action and experiment does a student learn to observe. Analysis divorced from physical objectivity ultimately becomes barren. Whether a boy learns to draft or to paint or to use a tool with adequate professional skill is quite beside the point. What is important is that he gain a sense of the concrete, that he have a direct and tangible experience with the objects and the materials about which he thinks. To the powers of the intellect there must be added the capacity to see, a sense of form and shape and design, a feeling for the plasticity of matter.

It is a curious fact in the record of American scholarship that American mathematicians tend to be the most scornful of the potential usefulness of their labors. It is strange, in the light of our national heritage, that the scholarly emphasis on physics in this country is increasingly on the theoretical at the expense of the experimental. It is significant to observe a comparable movement toward the abstract in the current revisions of engineering education.

(Concluded on page 56)

An Analysis of Leadership

It is a complex relationship among variables, and industry should strive to develop each man's unique potentialities

BY DOUGLAS MURRAY MCGREGOR

Are successful managers born or "made"? Does success as a manager rest on the possession of a certain core of abilities and traits, or are there many combinations of characteristics which can result in successful industrial leadership? Is managerial leadership—or its potential—a property of the individual, or is it a term for describing a relationship between people? Will the managerial job 20 years from now require the same basic abilities and personality traits as it does today?

Knowledge gained from research in the social sciences sheds light on these and other questions relevant to leadership in industry. It does not provide final, definitive answers. There is much yet to be learned. But the accumulated evidence points with high probability toward certain ones among a number of possible assumptions.

It is quite unlikely that there is a single basic pattern of abilities and personality traits characteristic of all leaders. The personality characteristics of the leader are not unimportant, but those which are essential differ considerably depending upon the circumstances. The requirements for successful political leadership are different from those for industrial management or military or educational leadership. Failure is as frequent as success in transfers of leaders from one type of social institution to another.

Even within a single institution such as industry, different circum-

The material in this article is from the book entitled The Human Side of Enterprise, by Douglas McGregor (Copyright, 1960, McGraw-Hill Book Co., Inc.) and was used with the publisher's permission.

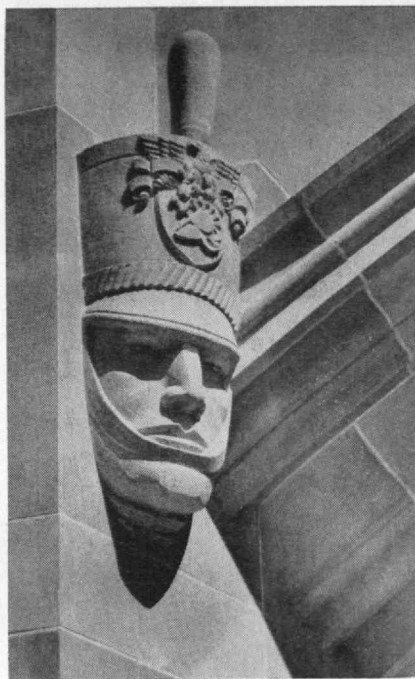


Photo by F. S. Lincoln, '22

The requirements for successful military, political, educational, and industrial leadership differ.

stances require different leadership characteristics. Comparisons of successful industrial leaders in different historical periods, in different cultures, in different industries, or even in different companies have made this fairly obvious. The leadership requirements of a young, struggling company, for example, are quite different from those of a large, well-established firm.

Within the individual company different functions (sales, finance, production) demand rather different abilities and skills of leadership. Managers who are successful in one function are sometimes, but by no means always, successful in another. The same is true of leadership at different organizational levels. Every successful foreman would not make a suc-

cessful president (or vice versa). Yet each may be an effective leader.

On the other hand, leaders who differ notably in abilities and traits are sometimes equally successful when they succeed each other in a given situation. Within rather wide limits, weaknesses in certain characteristics can be compensated by strength in others. This is particularly evident in partnerships and executive teams in which leadership functions are, in fact, shared. The very idea of the team implies different and supplementary patterns of abilities among the members.

Many characteristics which have been alleged to be essential to the leader turn out not to differentiate the successful leader from the unsuccessful ones. In fact, some of these—integrity, ambition, judgment, for example—are to be found not merely in the leader, but in any successful member of an organization.

Leadership Is a Relationship

There are at least four major variables now known to be involved in leadership: (1) the characteristics of the leader; (2) the attitudes, needs, and other personal characteristics of the followers; (3) characteristics of the organization, such as its purpose, its structure, the nature of the tasks to be performed; and (4) the social, economic, and political milieu. The personal characteristics required for effective performance as a leader vary, depending on the other factors.

This is an important research finding. *It means that leadership is not a property of the individual, but a complex relationship among these variables.* The old argument over whether the leader makes history or history makes the leader is



Douglas McGregor, Professor of Industrial Management at M.I.T., was formerly president of Antioch College. His scholarship has been combined with industrial experience, and he is widely known for his studies of social psychology and its application to industrial human relations.

resolved by this conception. Both assertions are true within limits.

The relationship between the leader and the situation is essentially circular. Organization structure and policy, for example, are established by top management. Once established, they set limits on the leadership patterns which will be acceptable within the company. However, influences from above (a change in top management with an accompanying change in philosophy), from below (following recognition of a union and adjustment to collective bargaining, for example), or from outside (social legislation, changes in the market, etc.) bring about changes in these organizational characteristics. Some of these may lead to a redefinition of acceptable leadership patterns. The changes which occurred in the leadership of the Ford Motor Company after Henry Ford I retired provide a dramatic illustration.

The same is true of the influence of the broader milieu. The social values, the economic and political conditions, the general standard of living, the level of education of the population, and other factors characteristic of the late 1800's had much to do with the kinds of people who were successful as in-

dustrial leaders during that era. Those men in turn helped to shape the nature of the industrial environment. Their influence affected the character of our society profoundly.

Today, industry requires a very different type of industrial leader than it did in 1900. Similarly, today's leaders are helping to shape industrial organizations which tomorrow will require people quite different from themselves.

Conformity Is Rewarded

An important point with respect to these situational influences on leadership is that they operate selectively—in subtle and unnoticed as well as in obvious ways—to reward conformity with acceptable patterns of behavior and to punish deviance from these. The differing situations from company to company, and from unit to unit within a company, each have their selective consequences. The observable managerial “types” in certain companies are illustrative of this phenomenon. One consequence of this selectivity is the tendency to “weed out” deviant individuals, some of whom might nevertheless become effective, perhaps outstanding, leaders.

Even if there is no single universal pattern of characteristics of the leader, it is conceivable at least that there might be certain universal characteristics of the *relationship* between the leader and the other situational factors which are essential for optimum organized human effort in all situations. This is doubtful. Consider, for example, the relationship of an industrial manager with a group of native employees in an underdeveloped country on the one hand, and with a group of United States workmen who are members of a well-established international union on the other. Moreover, even if research finally indicates that there are such universal requirements of the relationship, there will still be more than one way of achieving them. For example, if “mutual confidence” between the leader and the led is a universal requirement, it is obvious that there are many ways of developing and maintaining this confidence.

It does not follow from these considerations that any individual can become a successful leader in a given situation. It does follow that successful leadership is not dependent on the possession of a single universal pattern of inborn traits and abilities. It seems likely that leadership potential (considering the tremendous variety of situations for which leadership is required) is broadly rather than narrowly distributed in the population.

Research findings to date suggest that it is more fruitful to consider leadership as a relationship between the leader and the situation than as a universal pattern of characteristics possessed by certain people. The differences in requirements for successful leadership in different situations are more striking than the similarities. Moreover, research studies emphasize the importance of leadership skills and attitudes which can be acquired and are, therefore, not inborn characteristics of the individual.

It has often happened in the physical sciences that what was once believed to be an inherent property of objects—gravity, for example, or electrical “magnetism,” or mass—has turned out to be a complex relationship between internal and external factors. The same thing happens in the social

sciences, and leadership is but one example.

Implications for Management

What is the practical relevance for management of these findings of social science research in the field of leadership? First, if we accept the point of view that leadership consists of a relationship between the leader, his followers, the organization, and the social milieu, and if we recognize that these situational factors are subject to substantial changes with time, we must recognize that we cannot predict the personal characteristics of the managerial resources that an organization will require a decade or two hence. Even if we can list the positions to be filled, we cannot define very adequately the essential characteristics of the people who will be needed in those situations at that time. *One of management's major tasks, therefore, is to provide a heterogeneous supply of human resources from which individuals can be selected to fill a variety of specific but unpredictable needs.*

This is a blow to those who have hoped that the outcome of research would be to provide them with methods by which they could select today the top management of tomorrow. It is a boon to those who have feared the consequences of the "crown prince" approach to management development. It carries other practical implications of some importance.

With the modern emphasis on career employment and promotion from within, management must pay more than casual attention to its recruitment practices. It would seem logical that this process should tap a variety of sources: liberal arts as well as technical graduates, small colleges as well as big universities, institutions in different geographic regions, etc. It may be necessary, moreover, to look carefully at the criteria for selection of college recruits if heterogeneity is a goal. The college senior who graduates in the top 10 per cent of his class may come from a narrow segment of the range of potential leaders for industry. What of the student who has, perhaps for reasons unrelated to intellectual capacity, graduated in the middle of his class because he got A's in some subjects and C's and D's in

others? What of the student whose academic achievement was only average because the education system never really challenged him?

As a matter of fact there is not much evidence that high academic achievement represents a necessary characteristic for industrial leadership. There may be a positive correlation, but it is not large enough to provide a basis for a recruitment policy. In fact, the current President of the United States would have been passed over at graduation by any management recruiter who relied on this correlation! It may be, on the contrary, that the *intellectual* capacity required for effective leadership in many industrial management positions is no greater than that required for graduation from a good college. Of course, there are positions requiring high intellectual capacity, but it does not follow that there is a one-to-one correlation between this characteristic and success as an industrial leader. (This question of intellectual capacity is, of course, only one reason why industry seeks the bulk of its potential managerial resources among college graduates today. There are other factors involved: confidence and social poise, skill acquired through participation in extracurricular activities, personal ambition and drive, etc. These, however, are relatively independent of class standing.)

It may be argued that intellectual *achievement*, as measured by consistently high grades in all sub-

jects, is evidence of motivation and willingness to work. Perhaps it is — in the academic setting — but it is also evidence of willingness to conform to the quite arbitrary demands of the educational system. There is little reason for assuming that high motivation and hard work in school are the best predictors of motivation and effort in later life. There are a good many examples to the contrary.

Development Program Requirements

A second implication from research findings about leadership is that a management development program should involve many people within the organization rather than a select few. The fact that some companies have been reasonably successful in developing a selected small group of managerial trainees may well be an artifact — an example of the operation of the "self-fulfilling prophecy." If these companies had been equally concerned to develop managerial talent within a much broader sample, they might have accomplished this purpose with no greater percentage of failures. And, if the generalizations above are sound, they would have had a richer, more valuable pool of leadership resources to draw on as a result.

Third, management should have as a goal the development of the unique capacities and potentialities of each individual rather than common objectives for all participants. This is a purpose which is honored on paper much more than in practice. It is difficult to achieve, particularly in the big company, but if we want heterogeneous leadership resources to meet the unpredictable needs of the future we certainly won't get them by subjecting all our managerial trainees to the same treatment.

Moreover, this process of developing heterogeneous resources must be continuous; it is never completed. Few human beings ever realize all of their potentialities for growth, even though some may reach a practical limit with respect to certain capacities. Each individual is unique, and it is this uniqueness we will constantly encourage and nourish if we are truly concerned to develop leaders for the industry of tomorrow.

(Concluded on page 64)



Sketch from The Nation

High academic achievement may not represent a necessary characteristic for industrial leadership.



When the Institute Builds

Its plans are evolved carefully, and reviewed repeatedly, to guarantee construction that will serve for many years

BY PHILIP A. STODDARD, '40
Vice Treasurer of M.I.T.

M.I.T. is about to embark on the most extensive period of sustained expansion in its history. Construction will begin this year on three buildings—the Center for Earth Sciences, the Burton-Conner Dining Facility, and our first multi-story parking structure. A half-dozen other buildings are in various stages of planning and design, and more are needed. As the Institute's national responsibilities grow, and greater emphasis is placed on the residential and extracurricular life of the campus community, the physical plant must be enlarged.

Planning this physical growth is a demanding and difficult job, for a university building must last for many years. It not only must fulfill its function for a long time but be adjustable to changing needs and requirements. Fundamental deficiencies are almost impossible to overcome. Planning a university building, therefore, is necessarily a long, involved, and painstaking process, requiring the selfless efforts of dozens of people.

Plans and Decisions

Final responsibility for major building decisions at M.I.T. rests with the President and the Executive Committee of the Corporation. Advising them as Architectural Consultant is Dean Pietro Belluschi of the School of Architecture and Planning. On the basis of information and alternatives presented by a chain of staff committees, the President and Executive Committee approve the locations for development, agree on budgets, select the architects, and decide the general character of the buildings. Their interest is keen and continuous and

they receive frequent briefings while the early program and design studies are being evolved.

A guiding force behind building programs is the Long Range Planning Committee. Chaired by Dean Belluschi, this group meets once a month to review proposals and problems relative to land development and to evaluate them against the Institute's master plan. This plan is being continually revised and refined. Another part of the committee's work is to examine developments in Metropolitan Boston that may affect the physical future of M.I.T. This task may range from an assessment of the new Cambridge Zoning Ordinance to an analysis of the extent to which a proposed belt superhighway through downtown Boston and Cambridge may ease automobile access to M.I.T.

Although the committee is an advisory body and does not make policy, it includes many of the people who do. Indeed, the Long Range Planning Committee is a very representative group with direct channels downward and upward to every activity which consumes land area or building space. In addition to Dean Belluschi, the committee consists of the President, the Vice-president and Treasurer, several senior academic officers including the Head of the Department of City and Regional Planning, the Administrative Vice Chancellor, the Vice Treasurer and the Dean of Students. The Vice Treasurer has the working line responsibility for guiding building projects from initial planning through to completion.

Once a building project is proposed, the Long Range Planning Committee evaluates its program requirements and recommends a site. Academic and research structures, parking facilities, athletic

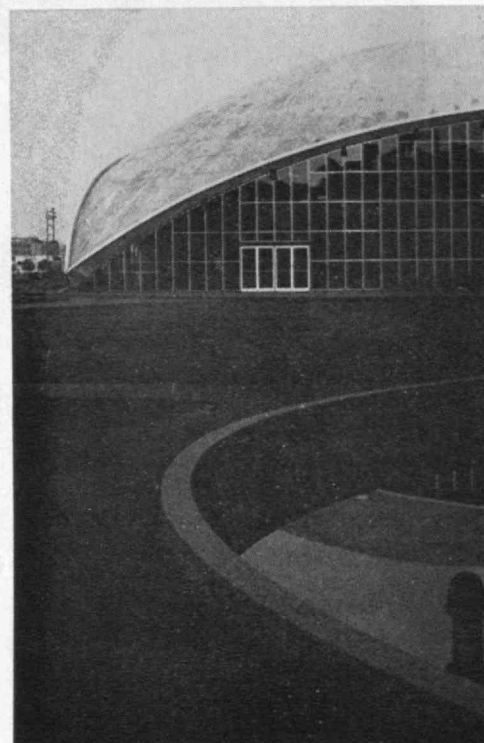


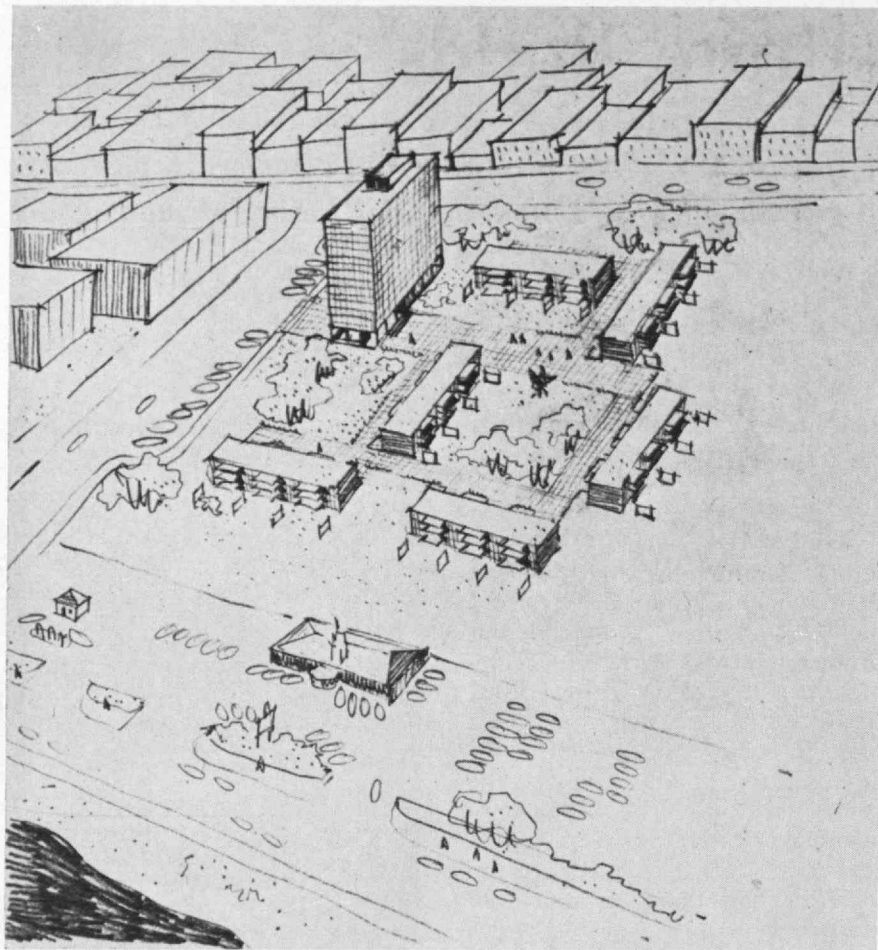
Photo by Dr. Egon E. Kattwinkel, '23

The design of buildings and their environment is a critical consideration in an urban institution.

fields, everything that requires land is within this group's purview, and its work is so complex and important that it is one of the few committees at M.I.T. with full-time staff assistance. Malcolm D. Rivkin, '56, became the Institute's first Planning Officer more than two years ago.

As a major institutional resident, M.I.T. has a stake in the whole community's health. Traffic flow, blight, and decay are problems of M.I.T. as well as of Cambridge and Boston. Accordingly, an important effort is directed to working with the planning agencies and citizen's groups of the community and with colleagues at Harvard and other neighboring universities. The announcement a few months ago

Set in an aerial view of the community (at left) is a model of the Institute as currently envisioned.



One of many ideas considered for a home for M.I.T. graduate students.

of M.I.T.'s joining with a real estate development firm to create a major new industrial research center on the Rogers Block-Lever Brothers site, immediately to our north, was striking evidence of the Institute's faith and interest in the community.

In an urban institution such as M.I.T., the design of its buildings and their environment is a critical consideration. Good design and sensitive landscaping help "humanize" a physical plant, particularly one in which the intensity of activity is constantly increasing. For this reason, the Institute retains the consulting services of Sasaki, Walker and Associates, who are nationally regarded landscape architects and site planners. This firm works with the Planning Officer and the Long Range Planning Committee to develop the design elements of the master plan and with individual architects regarding specific buildings. Sasaki, Walker also handle the design and supervision of each new landscaping project for the buildings.

All in all, then, M.I.T.'s physical planning is an attempt to establish an effective framework into which new building projects can fit. Yet inevitably, as each new project affects other parts of the plant, the framework itself must be re-evaluated and modifications made where appropriate.

From Studies to Construction

With this as background let us now look at some of the basic steps involved in completing a new structure once the decision to build has been made and the method of financing determined. First, the departments directly concerned block out program requirements in detail. All activity which might conceivably go into the building is considered. Space requirements are estimated. Functional relationships are detailed, budget considerations weighed, and expansion possibilities analyzed. This is the initial responsibility of a "steering committee" that will follow the project through each succeeding stage. This group is generally composed of rep-

resentatives of the departments involved, the Physical Plant Department, the Treasurer's Office, and any other appropriate officers.

Concurrently with the initial program studies comes the selection of an architect. The Dean of Architecture and the Vice Treasurer begin this process by preparing an extensive list of architects for consideration. With the President and his senior associates they narrow the list to several possibilities. Eventually a final choice is presented to the Executive Committee of the Corporation. If this body approves, the architect is invited to take the commission. Because there are a great many imaginative and competent architects interested in working with us on these programs, final selection always is difficult.

Contract agreements with the architect usually include provision for engineering services as well. The Institute normally invites the architect to select the engineers and other consultants whom he may require although we reserve the right of final approval. On larger projects the Institute usually tries to have a cost-control monitor in some way included on the "team." This responsibility is delegated to a qualified professional who works with the architects, engineers, and M.I.T. from initial stages of design through successive stages of development to completion.

When the architect begins his preliminary design, he is given the Long Range Planning Committee's recommendation on a site and invited to suggest modifications. The Institute stresses, however, that any departure from the site proposal must consider other future building needs not connected with the project at hand but related to it. Thus the architect is permitted to depart from the plan only if he convinces the Institute that he has developed a better one. Once the preliminary plans are under way, the architect works with the Steering Committee on occupancy requirements; with the Planning Officer, on circulation and parking; with the Physical Plant Department, on utilities, links to other facilities, and general construction requirements; and with the Treasurer's Office on budget.

Other offices also participate in the decisions. The Occupational

Medical Service, for example, advises on potential health hazards, involving storage and use of hazardous materials, ventilation, design of special-purpose laboratory hoods, and the like. The appropriate Dean is kept informed of progress so that he can review the general concept that the "steering committee" and the architect are developing, relating this to the needs of the occupants and its effect on other departments in his School. The end product of these combined efforts is the development of a set of preliminary plans, specifications, and cost estimates.

When preliminary plans are ready, the President and his senior administrative officers undertake another review of the project. All aspects are considered with particular emphasis on assessing the success of the initial design concept in meeting the objectives of the occupants and the program, its general character in relation to the campus around it, and its anticipated cost. Upon approval of the preliminary plans, the architect is asked to make working drawings.

Bids and Surveillance

Except in a very unusual case, all major contracts at the Institute are let on a competitive bid basis. Since this is the case, the architect is instructed to devote a great deal of care to his working drawings and specifications in order to develop a comprehensive, complete, and consistent set of bid documents which will permit the selected bidders to prepare thorough and accurate estimates upon which to base their proposals for the construction of the project. A properly prepared set of plans and specifications permits close competitive bidding and effectively minimizes the extent to which unanticipated contingencies may increase the final over-all cost of the project. Although the construction division of the Physical Plant Department, as well as the other people involved, has been in intimate touch with the plans as they have been evolving, and has conferred frequently with the architects and engineers regarding details of materials and construction methods, an additional period of intensive review is undertaken as the working drawings and specifications near completion and progress

prints and specification drafts become available for study.

While final details are being worked out, a selected list of general contractors who will be invited to bid on the project is prepared and approved. The contractors on such a list usually number from six to 12 and are all reputable organizations particularly well qualified for the project under consideration. The group of contractors on our informal bidding list is being reviewed constantly to include not only organizations with whom the Institute has had past experience but others who have expressed an interest in doing work for the Institute. After the bids are received, a careful analysis and evaluation of them is made in conjunction with the architect. When this has been completed, the election of appropriate alternates is decided upon, the authorization to proceed is given by the President and the Treasurer, and a contract is executed. Under the procedures just outlined, then, the contract is awarded to the low bidder.

The agreements with architects normally include their supervision of the work. In many instances, a representative of the architect is resident on the job, particularly if the architect is not local.

The Institute's Director of Physical Plant and his construction staff

keep close surveillance over the project from the beginning, and are responsible for administration of the contract through to final completion. Their activities and responsibilities in the process are myriad. They work out time and progress schedules with the architect and contractors. They review shop drawings, clarification drawings, and the like. They maintain budgetary controls and account for funds expended as the work progresses. In conference with the architect, they work out solutions to problems which arise due to field conditions. They keep current the estimated costs and schedules to completion and forward regular reviews to the Vice Treasurer. In short, theirs is the major responsibility on behalf of the Institute for progress and performance in the construction.

Thus, through the combined efforts of many people and by means of the organizational pattern just outlined, the building is ultimately completed and ready for occupancy. Clearly it is a complex kind of undertaking. We are sure that our pattern is not the only way to build a building. But we do believe it has proved an effective way to guarantee that M.I.T. will have facilities efficient in function, excellent in design, and economic in cost, which will serve us well for many years.



Part of the photographic record of the Compton Laboratories construction.

Mexico Club Is Fiesta Host

THE M.I.T. CLUB of Mexico celebrated its 50th anniversary by being host at a fiesta last March to many Alumni from the United States, and the Class of 1921 held a reunion at the same time.

Pictured directly below are C. George Dandrow, '22, former President of the Alumni Association, supported by Philip A. Nelles, Jr., '21, and Oscar Aros-Villa, '29.

Upper right — 14 of the 18 members present for the Class of 1921's special "Fiesta." Left to right: James S. Parsons, Ralph D. Cooper, Larcom Randall, Viviano Valdés, Philip A. Nelles, Jr., Arthur A. Turner, Dugald C. Jackson, Jr., Raymond A. St. Laurent, Irving D. Jakobson, Edouard N. Dubé, Herbert C. DeStaeblér, Ralph M. Shaw, Jr., Miles M. Zoller, and Marion S. Sanders.

Center right — At the *cóctel* tendered by Robert C. Hill, U.S. Ambassador to Mexico. Left to right: Clarence M. Cornish, '24, President of the M.I.T. Club; Mrs. Cornish; Mrs. Hill; Mrs. Lobdell; Ambassador Hill; and H. E. Lobdell, '17, Executive Vice-president of the Alumni Association of M.I.T.

Lower right — Standing from left to right: Alvino Manzanilla-Arce, '31, Secretary of the M.I.T. Club; Clarence M. Cornish, '24; Irving D. Jakobson, '21; George R. Harrison, Dean of Science, M.I.T.; Manuel S. Vallarta, '21; and Carl F. J. Overhage, Director of the Lincoln Laboratory, M.I.T.



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Books

THE QUESTION OF GOVERNMENT SPENDING, PUBLIC WANTS AND PRIVATE NEEDS, by Francis M. Bator, '49; Harper and Brothers (\$3.75). *Reviewed by Emilio G. Collado, '31, Director, Standard Oil Company (New Jersey).*

PROFESSOR BATOR's book is a hardy, courageous effort to weed out singlehandedly a number of garden-variety notions that are falsely grounded or irrelevant, but nevertheless often cited, in discussions of government spending. He has written the book for the layman who wishes to be free from the conditioning of popular slogans and from what he calls the consequent "illusory dilemmas." There are enough real dilemmas in judging the proper level of a government budget. Rather than try to teach the layman to use techniques of economic analysis, his method is to examine directly the logic and relevance and, where possible, the quantitative evidence and certainty of the assumptions behind ideas that government spending must cause waste, inflation, and loss of consumer choice.

The result is a thought-provoking and interesting exploration of the groundwork of popular fiscal thinking. The reader is given the chance to follow the rea-

soning process of a brilliant and capable mind. There is some awkwardness in language but this is probably inevitable in an attempt to popularize economic concepts. Of course, in the quest for clarity, there is some oversimplification, but it is not as great or pervasive as the generalizations under attack. I would point out also that the reader is given a useful package of statistics on government spending since 1929 in a separate section of the book.

It is Professor Bator's belief that many of the current notions about the adverse effect of government expenditure need to be qualified. He is honest about his own predilection and the fact that the emphasis and choice of examples in the book are not neutral. As he says in the preface, the overtones and motives are the result of his view that the American public is dangerously shortchanging itself on defense, education, foreign aid, urban renewal, and medical service.

It should not be surprising then that he has concluded that government has an important allocating function to perform. He argues that this is not inconsistent with the doctrine of consumer sovereignty and that, in fact, it is a corollary. Agriculture aside, he believes that free markets would not do well by most of the major functions now served by government.

If it is desirable to increase the amount allocated to public wants, and he believes that it is, then the problem is how to choose the appropriate financing means. Here another set of popular notions arises to be evaluated. I find I would not agree entirely with his analy-

(Continued on page 50)

CAST WAVE GUIDES — INTRICATE MACHINE PARTS

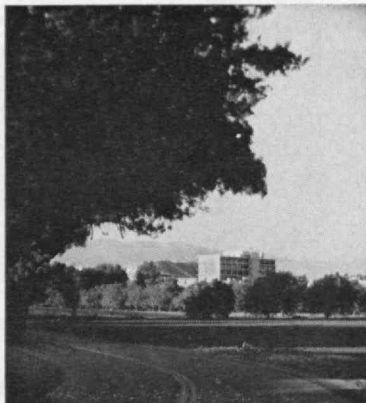


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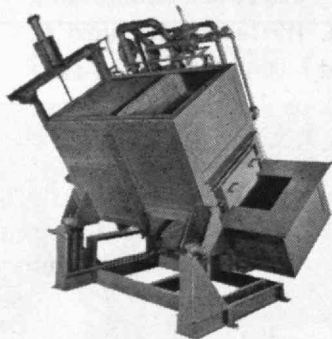
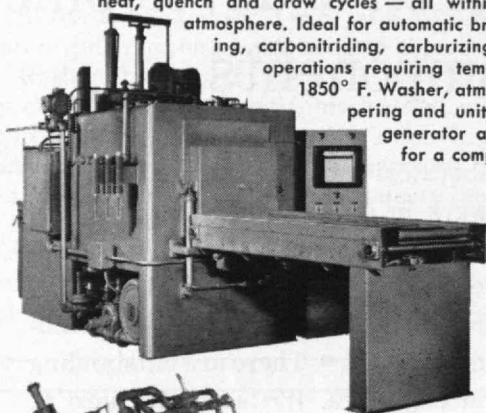
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Books

(Continued from page 48)

sis of the effect of taxes on incentives and private investment, and I would still have questions regarding his treatment of economic growth. All of this is pertinent to current fiscal issues, as is also his analysis of the case for applying taxes, rather than user charges, to finance government expenditures in situations characterized by public good and decreasing costs. In this connection, he has given an argument against exclusive reliance on the test of profits as concerns, for example, public decisions to improve transportation, and, as one might interpret, against the present drift in Administration policy to put more public transportation facilities on a self-financing basis.

This is not an easy book. As Professor Bator states, it is written for the *persistent* lay reader. The reader's effort, however, is well rewarded. Since the questions discussed are so relevant to current debates, the book has a timely arrival.

THE AMERICAN CIVIL ENGINEER — ORIGINS AND CONFLICT, by Daniel H. Calhoun; Technology Press (\$5.50). Reviewed by John B. Babcock, 3d, '10, Professor of Railway Engineering, Emeritus, M.I.T.

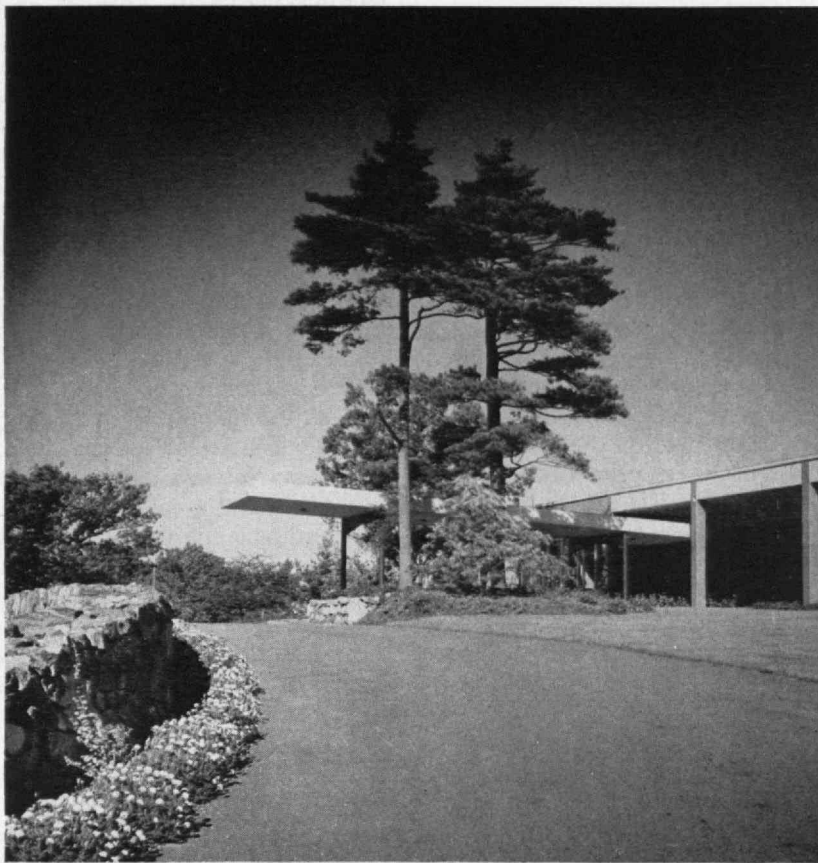
IN this book, Mr. Calhoun has presented the results of an exhaustive research on the training and development and on the activities of the civil engineer in the United States during the period from about 1812 to 1840. Particular emphasis is placed on canals and railroads; these groups provided employment for the major portion of civil engineers in that era. Although some were employed on other types of work such as streets, water and sewerage projects, and water power developments, their number was small prior to 1840.

The principal sources on which the book is based are the published records of organizations that employed and trained engineers, and unpublished papers of a few such organizations and of a few engineers. An extensive bibliography is included and the text is thoroughly documented with references.

The need for civil engineers, the method of creating an engineer supply, and the tasks of the civil engineer form the core of the author's study. These subjects are interrelated to a considerable extent and result in what he terms "origins and conflict" in the subtitle of the book. Particular attention is given to the effect of the depression (1837 into the middle 1840's) on the construction of public works and the consequent reduction in civil engineering employment.

A good deal of material has been published about early civil engineering works, together with professional biographies of the engineers responsible for them. These have dealt primarily with specific projects and engineers. But Mr. Calhoun's purpose has been to show the development of the civil engineer and his profession during this formative period rather than to present biographies of individual men. He has discussed some of the activities of such early civil engineers as William Weston, Benjamin Wright, Loammi

(Concluded on page 52)



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| R. HARRIS | '37 | F. J. BUMPUS | '51 | R. L. CHILD | '57 |

Books

(Concluded from page 50)

Baldwin II (sometimes referred to as the "father of civil engineering"), and certain West Point graduates such as Stephen H. Long, William G. McNeill, and George W. Whistler who were prominent in the field of railroading. But this material has been used to illustrate the conditions surrounding the employment of civil engineers in this period and the conflicts arising from the differences in their backgrounds and training.

The need for civil engineers in this country during the period studied was large but there was a serious lack of trained men. Occasionally foreign engineers were called upon in the early stages but this never was an important factor. Opportunities for the technical education of a civil engineer were practically nonexistent prior to the establishment of a course in civil engineering at Rensselaer Polytechnic Institute in 1835. However, the training at the U.S. Military Academy included courses of value to the civil as well as to the military engineer. About 200 graduates in the classes from 1821-1840 went into civilian engineering at some time. West Point undoubtedly was the largest single supplier of civil engineers during this period.

Many early civil engineers were the product of self-education. Competent surveyors often broadened to become civil engineers. A skilled stonemason might extend his activities to become a bridge builder. Others, originally trained for different pursuits, stud-

ied mathematics and physics, perhaps visiting engineering works in Europe, and ultimately became noteworthy civil engineers. In a few instances, prominent engineers (including Loammi Baldwin II) took young men into their offices and gave them professional training in addition to using them as assistants.

What finally emerged was, in the words of the author, the "organizational engineer" trained within the existing business or governmental units. Inevitably conflicts arose from differences in background and training—compare, for example, the civil engineer who was originally a stonemason and the West Point type of engineer. Mr. Calhoun presents an interesting study of these conflicts.

The author has given considerable attention to the "tasks of an engineer," outlining the core of the engineer's work in his specific field, his activities sometimes as a commissioner and as a promoter, and as a contractor and a manager.

Prominent engineers serving as chief engineers on major projects were often called upon to serve as consultants on other projects of a similar character. But the present-day role of the consulting engineer, devoting his full time and that of his organization to preparation of reports, designing of specific projects, and often supervising their construction, had not developed in this period.

Mr. Calhoun's study of the pattern and trends in the development of the early American civil engineer is an interesting one and it provides a worthwhile addition to books in the field of civil engineering.

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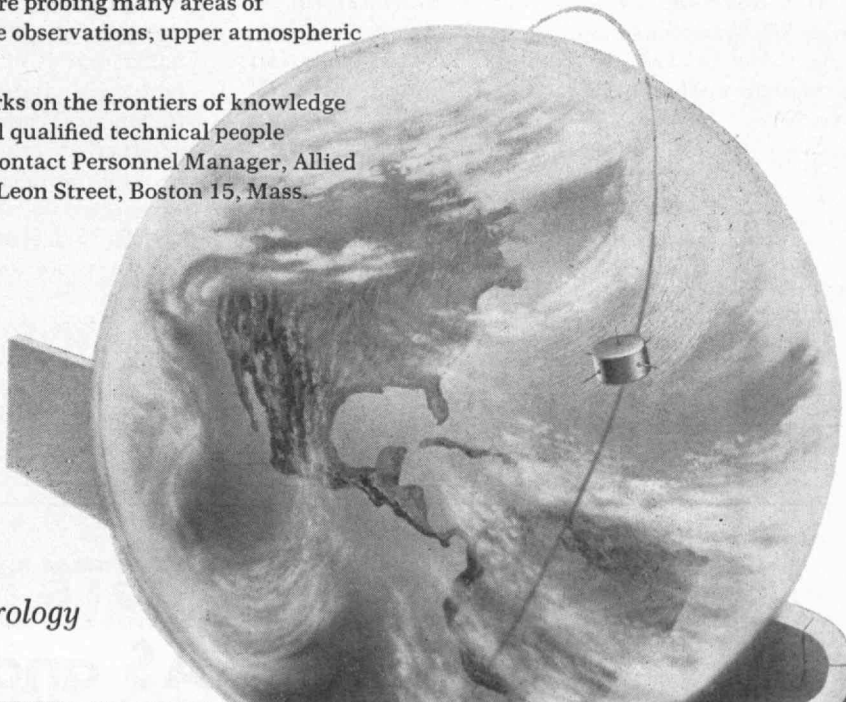
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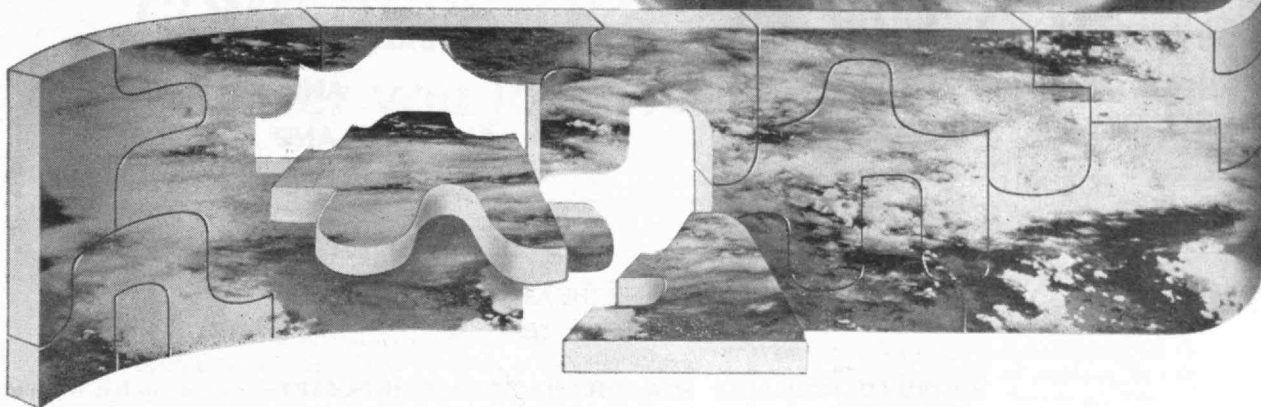
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Institute Yesteryears

25 Years Ago . . .

ON JULY 1, 1935, Charles E. Smith, '00, Vice-president of the New Haven Railroad, retired as the 41st President of the Alumni Association, being succeeded in that office by Professor Edward L. Moreland, '07, Head of the Department of Electrical Engineering. C. Adrian Sawyer, '02, became Vice-president.

Also, Grosvenor D'W. Marcy, '05, and Franklin T. Towle, '08, retired as members of the Executive Committee, these two vacancies being filled by the election of Professor Carle R. Hayward, '04, and Charles R. Boggs, '05.

☞ Godfrey L. Cabot, '81, William D. Coolidge, '96, and Redfield Proctor, '02, retired as Alumni Term Members of the Institute's Corporation, their successors for 1935-1940 being Charles E. Smith, '00, Rufus E. Zimmerman, '11, and Arthur C. Dorrance, '14. Hovey T. Freeman, '16, was elected to fill the unexpired 1933-1938 term of the late Allan Winter Rowe, '01.*

*Later, two of the above-named were elected Life Members of the Corporation: Proctor in 1935, and Cabot in 1933.

Faculty retirements at the close of 1934-1935 included Professor Dugald C. Jackson, Head of the Department of Electrical Engineering; Professor Frederick H. Bailey of Mathematics; and Charles E. Littlefield, '95, Instructor in the Department of Mechanical Engineering.

50 Years Ago . . .

UNDER the title "A Sane Athletic Policy" in The Review for July, 1910, Dr. J. Arnold Rockwell, '96, for whom the Rockwell Cage is named, wrote in part:

"The results of the present athletic policy of the Institute have been so positively beneficial as to attract the general attention of sister institutions. The policy is one which tends to advance the physical development of the entire student body, and adapting, as it does, the degree and extent of exercise to the individual demands of the students, it is producing a student body with improved physique and a greater capacity for mental work. The tendency of this policy is to produce athletic students rather than student athletes, to make athletics a healthful exercise rather than an absorbing business.

"Up to a comparatively recent period, athletics was not an important or successful feature of Institute life."

75 Years Ago . . .

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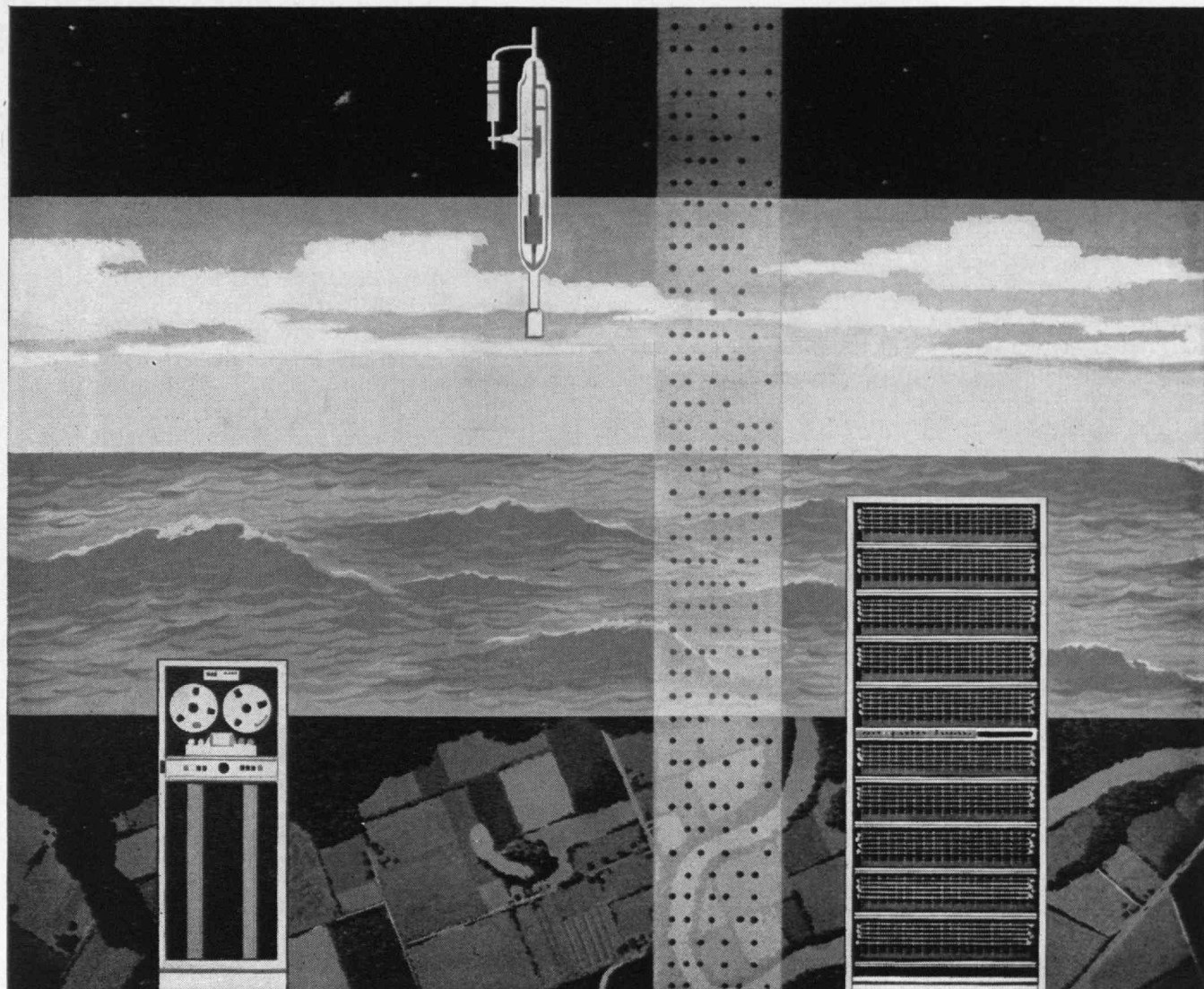
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Talk of Our Times

(Concluded from page 38)

There is for each of us a spiritual domain and an ultimate good in pure thought. But man has survived because of a capacity also for ideas that find their final expression in physical terms — in action, in the experiments of the scientist, in the constructions of the engineer, in the creations of the artist and the architect. The power of logical analysis to abstract immensely complicated physical situations constitutes one of the supreme achievements of the human mind, but when abstraction becomes an end in itself, science and art invite sterility.

A Curious Dichotomy

These are thoughts, I am well aware, upon which reasonable people may arrive at varying conclusions. I have drawn upon my own field of competence to develop the argument, but clearly I have in mind much larger implications. An almost arrogant intellectualism seems to me to affect a wide domain of American scholarship. Examine, if you will, the teaching of literature in our best colleges. From an emphasis upon an understanding and enjoyment of reading, one observes currently a preoccupation with criticism, with philology, and with symbolism. The stress placed upon the Ph.D. in English and the increasingly narrow and technical character of the thesis in that field, is evidence, I believe, of this same movement. Philoso-

phy at this moment shows a greater interest in the processes of mathematical logic than in the problems of human existence. I think you will find a corresponding emphasis upon the theoretical and intellectual approach to music in many of our universities.

There appears to be a curious dichotomy in our American culture. On the one hand, there is our familiar obsession with material things, with gadgets and devices. On the other, as if in protest or rebellion, our scholarship reveals increasingly this trend towards the analytical and abstract. There is nothing in such an evolution that is of itself insidious or reprehensible. On the contrary, we are entitled to be proud of the new level of American intellectual achievement and maturity. But let us beware of immoderation in this approach to scholarship — of excesses that drain learning of its human content and convey to the student of art and literature and science merely an anemic image of the human drama.

My plea is for balance, for a fullness and roundness in the educational experience. Let the student learn to respect and to cultivate his ties to the physical world, to nature, and to experiment. Let him find in art the counterpoise as well as the companion to the intellect, so that he may learn to see and feel as well as to think. For in the completeness of life human feelings must be added to human thought. Without that completeness, without healthy bonds to art, to nature, and to man, scholarship — however impressive — ultimately becomes little more than an intellectual exercise.

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Feedback

(Concluded from page 3)

fields of science and technology, although there seems to be an especially large number of journals in the life sciences. According to a sampling of periodicals received by the Harvard-Yenching Institute in Cambridge, the vast majority of Chinese scientific literature appears only in the Chinese language and normally does not reach translation. Two journals published in Peking, *Scientia Sinica* by the Academia Sinica, and *Science Record* by the Science Press, consist of papers in Western languages, principally English. These papers, representing various fields of science, often appear previously in other Chinese language journals.

There is a real need for broad-scale study of the scientific and technological resources of Communist China. This need is being partly met by specialists in Chinese affairs, and already several important studies of Communist China have been made which include comment on technological and educational developments.³ However, evaluation of particular scientific developments and advancements in scholarship can probably be made only

by scientists who are not primarily China specialists, i.e., who are principally mathematicians, engineers, and the like. Consequently, it is essential that some scientists be able to read the Chinese literature in their field, and accurate evaluation of Chinese scientific progress requires that knowledge of the language be fairly widespread. Because of the rapid increase in volume of Chinese scientific literature, the task may soon be too great to rely exclusively on the few American scientists who have learned Chinese as a native tongue. Some scientifically trained persons should therefore begin learning to read scientific Chinese as an acquired language.

Most of the difficulties associated with learning to read scientific Chinese literature, interestingly enough, are not associated with the language itself but seem to reflect a lack of interest among Western scientists. According to a study made by the author the following problems stand out:

1. Because of present world unrest, publications of the People's Republic of China do not circulate freely in the United States.

2. Textbooks and selected reading materials specifically for learning to read scientific literature are not yet available.

3. There appear to be no general Chinese-English dictionaries for technical usage such as exist for German, French, and Russian. Existing specialized dictionaries of technical terms, intended mainly for Chinese speakers, are not easily used by the Western student.

4. Class instruction in Chinese for the

scientist is not currently offered by United States universities. (M.I.T. is seeking to offer a course in scientific Chinese.)

Learning Chinese is not as insuperable a problem for the Western scientist as many tend to believe. Many Americans in the humanities and the social sciences are learning to read Chinese in courses offered by Yale, Harvard, Stanford, California, Chicago, and other universities, and many of the teaching techniques developed may be used in teaching scientific Chinese. It is true that Chinese is more time-consuming to learn than any Western language, but there are many simplicities that Westerners often overlook. The grammar is simple—words are not inflected, and number, tense, case, and person are all indicated by context. Each written character represents a monosyllabic word, although compound words with two characters are frequent. Parts of speech are not so precisely defined in Chinese as in English, and many words may serve as nouns, verbs, adjectives, etc., depending on context. Learning a written language based on characters requires different memory devices than one based on sound, but the difficulty is not nearly as great as the strangeness suggests. An increase in interest and an organized effort among scientists concerning the growing necessity for some scientists to read Chinese scientific literature could remove most of the problems associated with studying the language.

*Dept. of Geology and Geophysics
M.I.T., Cambridge 39, Mass.*

³W. W. Rostow, *The Prospects for Communist China* (Cambridge, Mass.: The Technology Press, M.I.T., 1954); A. Doak Barnett, *Communist China and Asia* (New York: Harper, Council on Foreign Relations, 1960); and U.S. Senate Committee on Foreign Relations, report on Asia, U.S. Government Printing Office, 1960.

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The Almost Chosen People

(Continued from page 34)

ing arc of its inner social and moral vigor."

Why this disparity between need and response? Many factors contribute, ranging from complacency on the one hand as evidenced by *Time* magazine's announcement last August that "the U.S. that Dwight D. Eisenhower left behind him [as he left for Europe] was one in which fear and fretting were made ridiculous by the facts of national life"—a tranquilizing untruth if ever there was one—to paralysis on the other: a premonition that the battles are not so much won as slipping beyond our control. From out of this congerie of forces I shall focus on one: the collapse of the doctrine of progress in its oversimplified Eighteenth-and-Nineteenth Century form.

I don't think we realize how much during the last two centuries we in the West have lived for tomorrow, how much we have banked on the future to give meaning to our lives. Particularly have we done

so here in America where the past was less of a drag. We sing of America as the land of our fathers, but we've thought of it as the land of our children. This faith that our lives and labors were building a better future has energized us tremendously, for men can endure greatly if reasonably convinced that their actions count. For 200 years we have assumed that they do count in a tangible, historically visible way. "The war to end all wars," "the war to make the world safe for democracy," "the century of the common man"—we have accepted the slogans at face value.

But the basic Western discovery about history in the middle third of the Twentieth Century is that the slogans are lies. We won the wars, but war hasn't been ended, democracy isn't safe, and the common man is proving a bit too common for comfort. Science brings us to the brink of a material paradise, but at precisely that moment, with the exquisite timing of a Greek tragedy, it hands us the hydrogen bomb. Medicine cuts our death rate dramatically only to present us in

exchange with the population problem. Hope and history seem destined always to remain apart. The Twentieth Century West has discovered this, and in doing so has found the primary spring run dry from which she has drunk meaning. The "nausea" of continental existentialism, Britain's angry young men, America's beatniks and rebels without causes, and the withdrawal of a penetrating political mind like Dwight McDonald to contemplate the eternal verities are only the most visible spasms of the consequent thirst. The fact that these are all Western phenomena underscores our point. I do not recall ever having seen this noted, but the only non-Western nation in which the above movements have caught on is the one that has had its try at technology-backed utopianism and been especially sobered by the venture. I refer of course to Japan.

Something like what we have described lies, I am convinced, at the root of the spiritual crisis of the contemporary West. In his book

(Concluded on page 62)

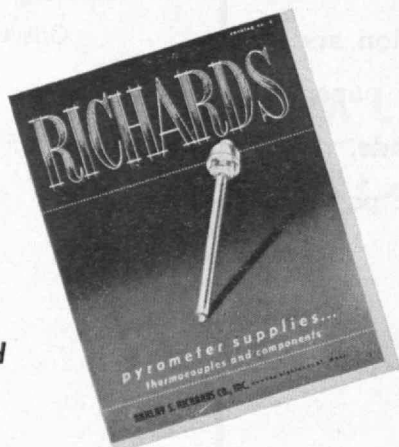
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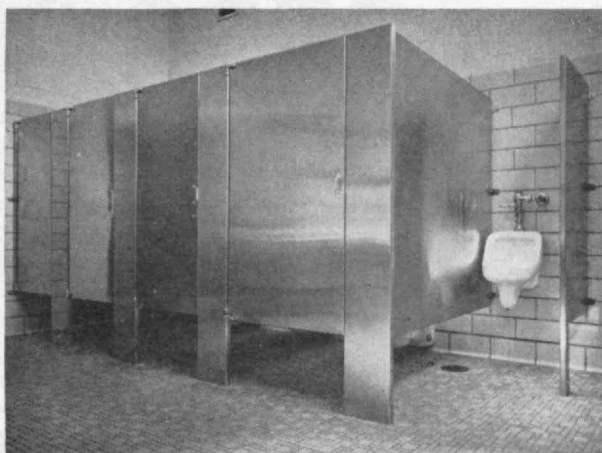


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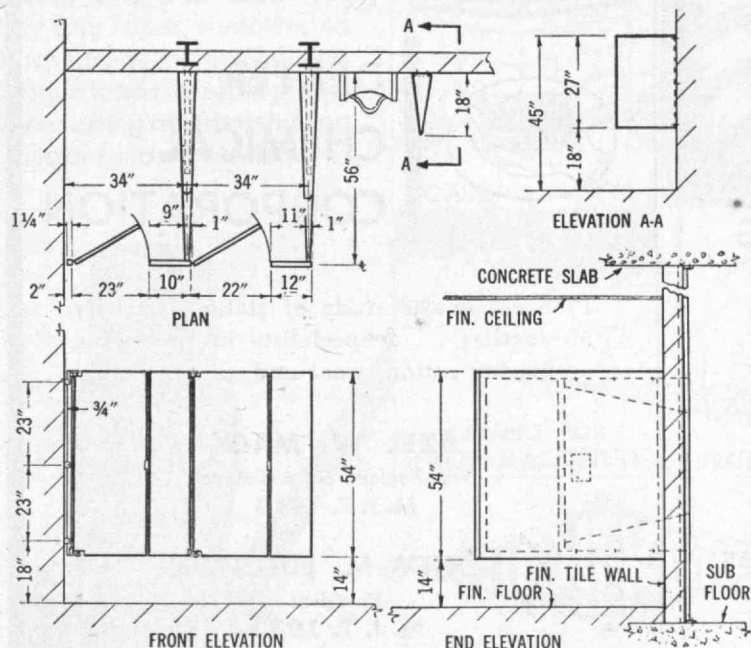
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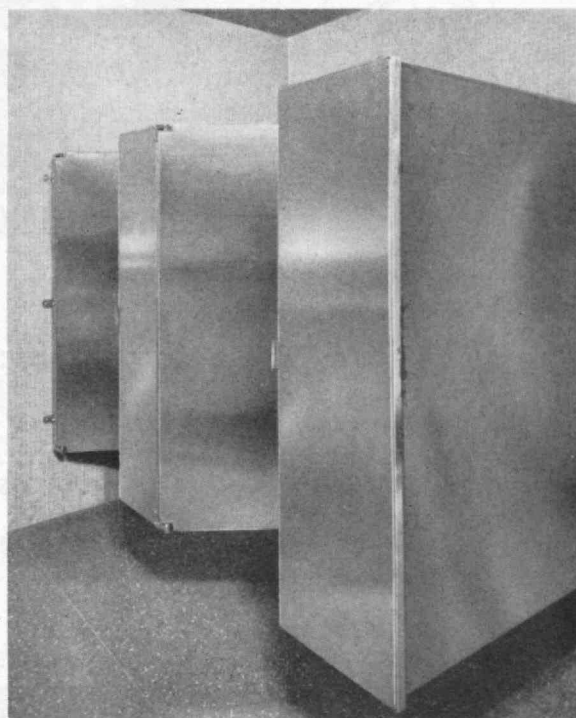
Stainless partitions are available as standard items or may be custom-made to meet special design requirements. The partitions featured here are floor braced design for an M.I.T. Laboratory, and a wall-cantilever type without floor supports or ceiling suspension for the U.A.W. Building.

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NATHAN SCHOOLER, '24
JEROME P. SCHOOLER, '56

The Almost Chosen People

(Concluded from page 60)

The Dynamics of Faith, Paul Tillich contrasts two kinds of faith which have sustained and enlivened human history: one is prophetic faith, rooted in the holiness of the "ought"; the other, ontological faith, rooted in the sanctity of the "is." Driven by divine discontent, unable to forget the fact that earth might be fair, solitary and alone if necessary the prophet strikes up for a new world. The man of ontological faith is different. He too is aflame, but with the present. What awes him is not the way things might be, but as they actually are: nature, life, and history in their immanent and ever-present mystery and wonder. Endowed with the divine eye, he can look out upon all that has been made and find it, even now, to be very good.

Stated in these terms, the spiritual crisis of the West springs from an imbalance of prophetic faith. I say imbalance because I cannot accept the thesis of the totally disillusioned that prophetic faith is in

principle misguided. Science is not one vast, gigantic error; progress is not a total fiction; the slogans, if lies, are not absolute ones. The need of the West is not to give up the idea of progress, but to find ways by which it can be grounded in a profounder appreciation of life and the world as they can be apprehended even today. For no one has more than one life to live, and if in the midst of our endeavors to transform them we cannot sense the worth of our imperfect lives, the goodness of this imperfect world, we shall have forfeited the only chance at joy that is ours. Stated in contemporary global terms, as the East learns from us today the importance of prophetic faith, perhaps it is our privilege to relearn from them the importance of ontological faith which we knew in the past but which they have better carried over into the Twentieth Century. I think of the friend in Kyoto who insisted that until an individual has attained the power of seeing the worth of life when he is alone and doing nothing more than being aware, his more overt

doings are unlikely to make a net contribution to humanity which is positive. Listening to him my mind went back to the story of an earlier master in his own tradition who was riding towards a city with an attendant. Seeing the city in the distance, the attendant spurred on his horse. The master called him back, saying, "here also it is good." and rode steadily on.

As in physics, so it would seem in life: our present understandings must be expressed in terms of complementarity. The "ought" is good, but because it is set within a context which renders it good *now*. The "is" is likewise good, but for this to be perceived it must be approached responsibly. The joy is in the striving, but precisely because the striving is set within a framework from which significance, could we but perceive the fact, is never lacking.

My last assignment to those of you who have been my students, and my first to those who have not, is to try to discover in the course of your lives what these assertions mean.



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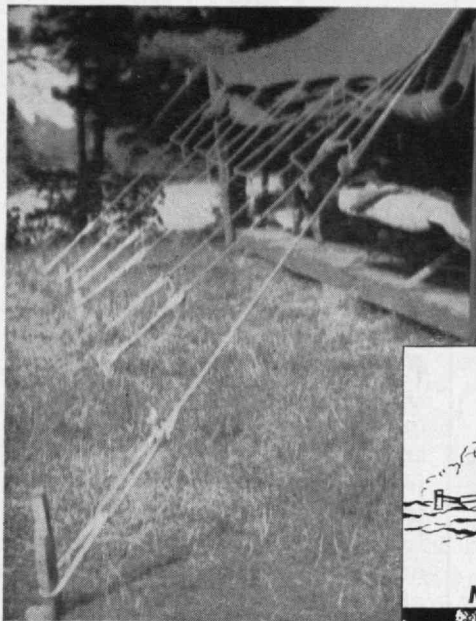
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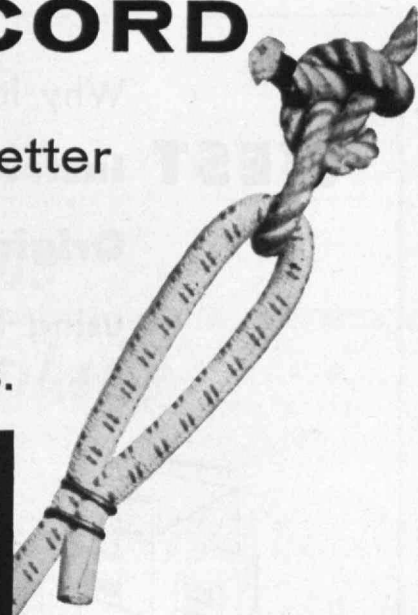
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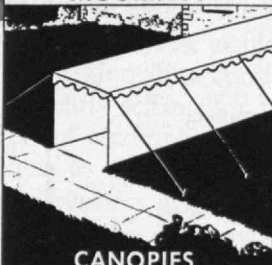
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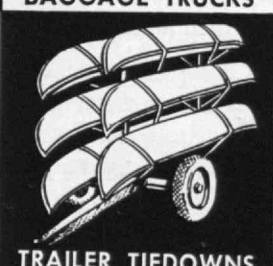
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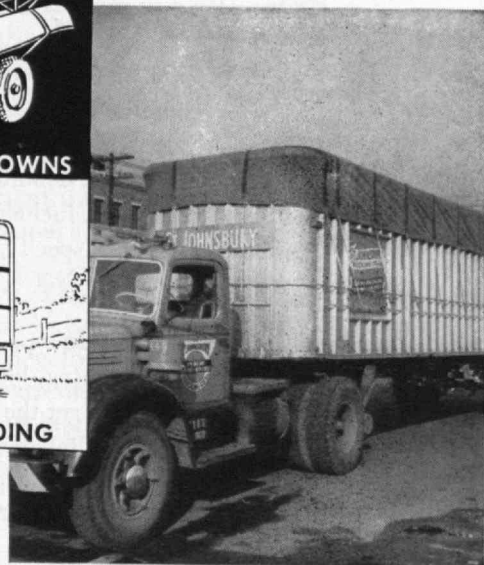
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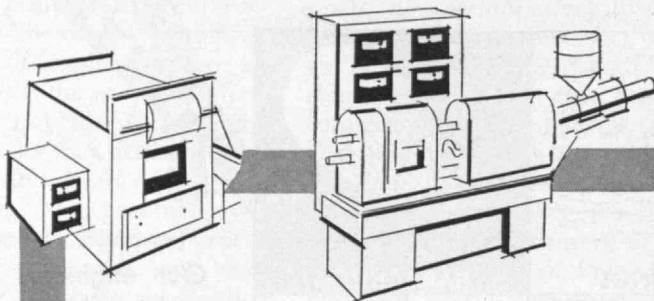


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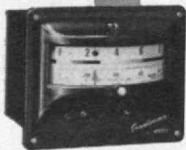


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An Analysis of Leadership

(Concluded from page 41)

Fourth, the promotion policies of the company should be so administered that these heterogeneous resources are actually considered when openings occur. There is little value in developing a wide range of talent if only a small and possibly limited segment of it constitutes the field of candidates when a particular position is being filled.

In view of the selective operation of situational variables referred to above, there may be legitimate questions concerning the value of an *exclusive* policy of "promotion from within." It is conceivable that in a large and reasonably decentralized company sufficient heterogeneity can be maintained by transfers of managerial talent between divisions, but it is probable that fairly strenuous efforts will be required to offset the normal tendency to create and maintain a "type," a homogeneous pattern of leadership within a given organization. Without such efforts competent individuals who don't "fit the pattern" are likely to be passed over or to leave because their talents are not rewarded. Many industrial organizations, for example, would not easily tolerate the strong individualism of a young Charles Kettering today.

People Come First

Finally, if leadership is a function—a complex relation between leader and situation—we ought to be clear that every promising recruit is *not* a potential member of top management. Some people in some companies will become outstanding leaders as foremen, or as plant superintendents, or as professional specialists. Many of these would not be effective leaders in top management positions, at least under the circumstances prevailing in the company.

If we take seriously the implications of the research findings in this field, we will place high value on such people. We will seek to enable them to develop to the fullest their potentialities in the role they can fill best. And we will find ways to reward them which will persuade them that we consider outstanding leadership at any level to be a precious thing.

is a \$25,000 twin-engine 220 mph, 5-place Airplane possible?

YES, IT IS, and the business airplane customers eagerly await its arrival in the sales rooms and hangars across the nation.

The preliminary design of this airplane has been completed by a small group of engineers in Dallas. The airplane will provide passenger and baggage capacity, speed, range, safety, and comfort at least equal to all the light twin-engine airplanes presently selling for prices up to twice the expected price of \$25,000. The airplane accomplishes these startling objectives only by using principles well-known to the industry but not presently being exploited by any manufacturer in the business airplane field. Although the design features are known and available to the industry, the means of implementing them are obscure and are what make the design unique.

The time to offer such an airplane to the public is now. Business aircraft sales are at an historic high and increasing each year. Profits of the light airplane companies, as contrasted to other portions of the aircraft industry, are very high and rising. This airplane is designed specifically to meet the requirements of a very large and as yet untapped portion of this growing market.

The principal designer of this airplane, an M.I.T. graduate with Bachelor and Master degrees in Aeronautical Engineering and seven years' experience in the aircraft industry, is presently forming a corporation to develop and market the airplane. The corporation will have few enough initial stockholders to give each investor the tax benefit of an immediate ordinary income write-off for experimentation and development costs.

The investment aspects as a whole are attractive. The initial technical risk, the relatively large amount of money required, and the relatively long lead time associated with any program leading to the development of a new large manufactured product are contrasted with the extremely high rate of return on invested capital characteristic of the light airplane industry today.

Prospective investors who desire more complete information on any aspect of the airplane's performance characteristics, technical personnel of the company, the development program outline, sales potential, investors presently committed, or any questions concerning the long-range goals and profit potentials of the company are requested to write or call:

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The Institute Graduates

(Continued from page 29)

Every informed man who can is under obligation to speak out on the urgent issues confronting us, Dr. Killian said, "and thus to contribute to the public thought and the national discourse — but to do so responsibly and temperately.

"Even though," he continued, "there has been a setback in foreign relations we cannot afford to lose faith in the possibility of relieving tensions, reducing armaments, and shaping a better world order. . . .

"We must accept the sobering fact that much of the world looks to the United States for leadership in all ways, but especially does it look to us for moral and intellectual leadership. It 'expects of us a certain height' and it grows critical when we fail to measure up simply because it expects more of us than of other nations. . . .

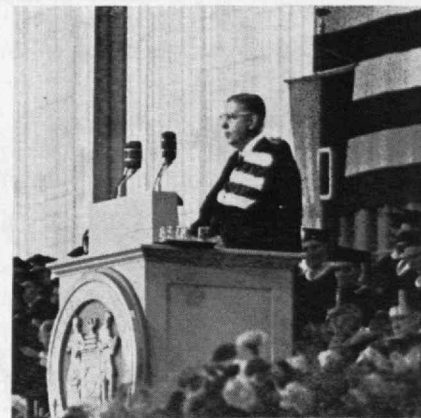
"Despite all the furor following the U-2 failure, we should not let ourselves be maneuvered into stopping the development of comparably useful intelligence capabilities. So long as the iron curtain

exists, so long as open skies have not been achieved and threats hang over us, we cannot draw back from defending ourselves and the Free World against surprise attack. The U-2 episode, unfortunate as it was, should not weaken our will to create and employ alternate means such as satellites to provide us with warning."

Dr. Killian emphasized that much remains to be done in behalf of national security, foreign aid, and education. "The failure of the summit conference," he said, "has revealed anew the urgent need still further to strengthen our science and technology.

"Every state, every city, every school, every individual must share the responsibility to contribute to the national strength and greatness. This is especially true of an institution with the history, position, and role of M.I.T."

Then, after briefly reviewing the Institute's first century, he reminded the graduates: "You have been students here in a period of growth, of advance, and of rising expectations, and we hope that you carry with you this sense of



Dr. Killian delivering the charge.

moving from strength to greater strength."

Dr. Land's address preceded, and Dr. Killian's followed, the awarding of degrees. There were 665 bachelor's degrees, 51 in advanced engineering, 429 master's, and 87 doctoral degrees. One candidate received three degrees, and there were 82 who each received two. This brought the total since the first M.I.T. class met 95 years ago to 48,843.

(Continued on page 68)



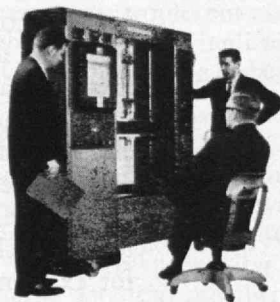
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OF NEW YORK

45 Wall Street

The Institute Graduates

(Continued from page 66)

The proceedings were filmed in addition to being telecast to the Kresge Auditorium for the hundreds who could not be accommodated in the Rockwell Cage.

The Goodwin Medal

Dr. Killian presided and President Julius A. Stratton, '23, introduced Dr. Land and presented the degrees. Candidates' names were called by Deans Pietro Belluschi, Gordon S. Brown, '31, John E. Burckhard, '23, Howard W. Johnson, and George R. Harrison.

Dean Harold L. Hazen, '24, of the Graduate School presented the Goodwin Medal for conspicuously outstanding teaching to Douglas Alfred East, '55, instructor in Mechanical Engineering.

Edward J. Hanley, '24, President of the Alumni Association, was the Chief Marshal and carried the mace. John J. Wilson, '29, was marshal of the Corporation; Frank Frederick Bell, '10, the 50-year class; Samuel J. Mason, '47, the Faculty, Richard L. Balch, the

graduates, and William H. Carlisle, Jr., '28, the audience.

Investors of the Hood were Dean Hazen and Professor Philip M. Morse, Chairman of the Faculty. The invocation was given by Rabbi Herman Pollack, adviser to the M.I.T. Hillel Society; Victor H. Mattfeld was the organist, and the prelude was by the M.I.T. Brass Choir conducted by John Dean Corley, Jr.

Facing the Class of 1960 from the rostrum when the mace was placed on the table were 30 members of the Corporation including Honorary Chairman Vannevar Bush, '16; 33 members of the Class of 1910, and 245 members of the Faculty.

The Baccalaureate Service

Commencement was preceded on Friday by a baccalaureate service at which Professor Huston Smith spoke. The invocation and benediction were given by Dr. Stratton, and Richard E. Kaplan, President of the Class of 1960, read from the Scriptures. Music was provided by Mr. Mattfeld at the organ and the Brass Choir in the opposite loft.

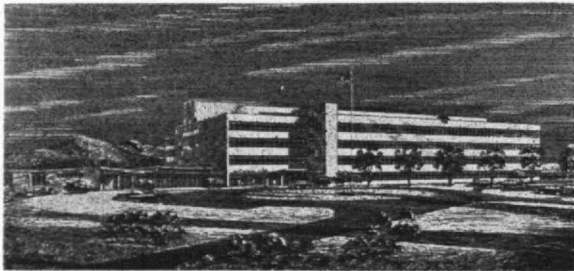
Luncheon in the Court

After the commencement ceremony, luncheon was served in the Great Court for the graduates, their families, and their friends. Dr. Stratton spoke briefly, and introduced Frank F. Bell, Harold C. Manson, and Dudley Clapp as representatives of the Class of 1910. Mr. Clapp, who was secretary of the class for many years, greeted the new Alumni in rhyme; and their class president, Mr. Kaplan, responded by predicting that the next 50 years will be more thrilling than the last, and expressing confidence that it will bring a change in men's behavior. A reception followed.

Commencement Committee

William Henry Dennen, '42, was the chairman of the Committee on Commencement this year, and was assisted by Raymond F. Baddour, '49, Richard L. Balch, Alfred du Pont Chandler, Jr., Miles P. Cowen, Robert Earl Hewes, '43, Donald P. Severance, '38, and John W. Sheetz, 3d, '42.

(Concluded on page 70)



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S. B. Jones '51—Design Engineer

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The Institute Graduates

(Concluded from page 68)

93 Enter Armed Services

For the first time, M.I.T. students were commissioned this year as Naval ensigns, as well as officers of the Air Force and Army. Ninety-three men joined the ranks of the armed services at the commissioning exercises the day before commencement, and will enter active duty within the next 12 months.

Maj. Gen. James McCormack, Jr. (USA, Retired), '37, who is now a Vice-president of M.I.T., presided at this ceremony. Speaking for the Army, Brig. Gen. Alden K. Sibley, Division Engineer for the New England Division, Corps of Engineers, emphasized the importance of basic science. For the Navy, Rear Admiral William E. Howard, Jr., '33, Assistant Chief, Bureau of Ships, spoke of the importance of active duty. And for the Air Force, Maj. Gen. Kenneth P. Bergquist, Air Force Command and Control Development Division, stressed the technological conflict with the U.S.S.R.



From left to right: Rear Admiral William E. Howard, Jr., '33, Maj. Gen. Kenneth P. Bergquist, Maj. Gen. James McCormack, Jr., '37, Rear Admiral Carl F. Espe, and Brig. Gen. Alden K. Sibley, at commissioning ceremony.

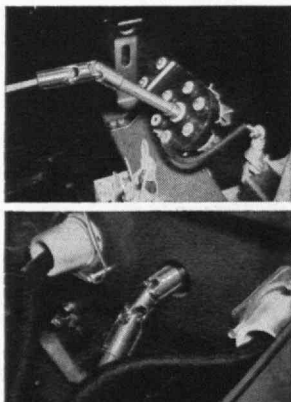
General Bergquist and General Sibley presented commissions to the Air Force and Army officers, respectively, and Admiral Howard to the men entering the Navy. The oath of office was administered by Col. Irving W. Finberg, '31, Professor of Military Science and Tactics at M.I.T.; Col. Frederic H. Fairchild, Professor of Air Science at M.I.T., and Rear Admiral Carl F. Espe, Commandant, First Naval District.

Other participants in the commissioning program in the Kresge Auditorium were the Rev. Myron B. Bloy, Jr., and the Rev. J. Edward Nugent, religious counselors at the Institute. Music for the occasion was by the Needham High School Band.

There were 19 distinguished military graduates on the roster of men sworn in, and among them were four who are accepting regular Army commissions.



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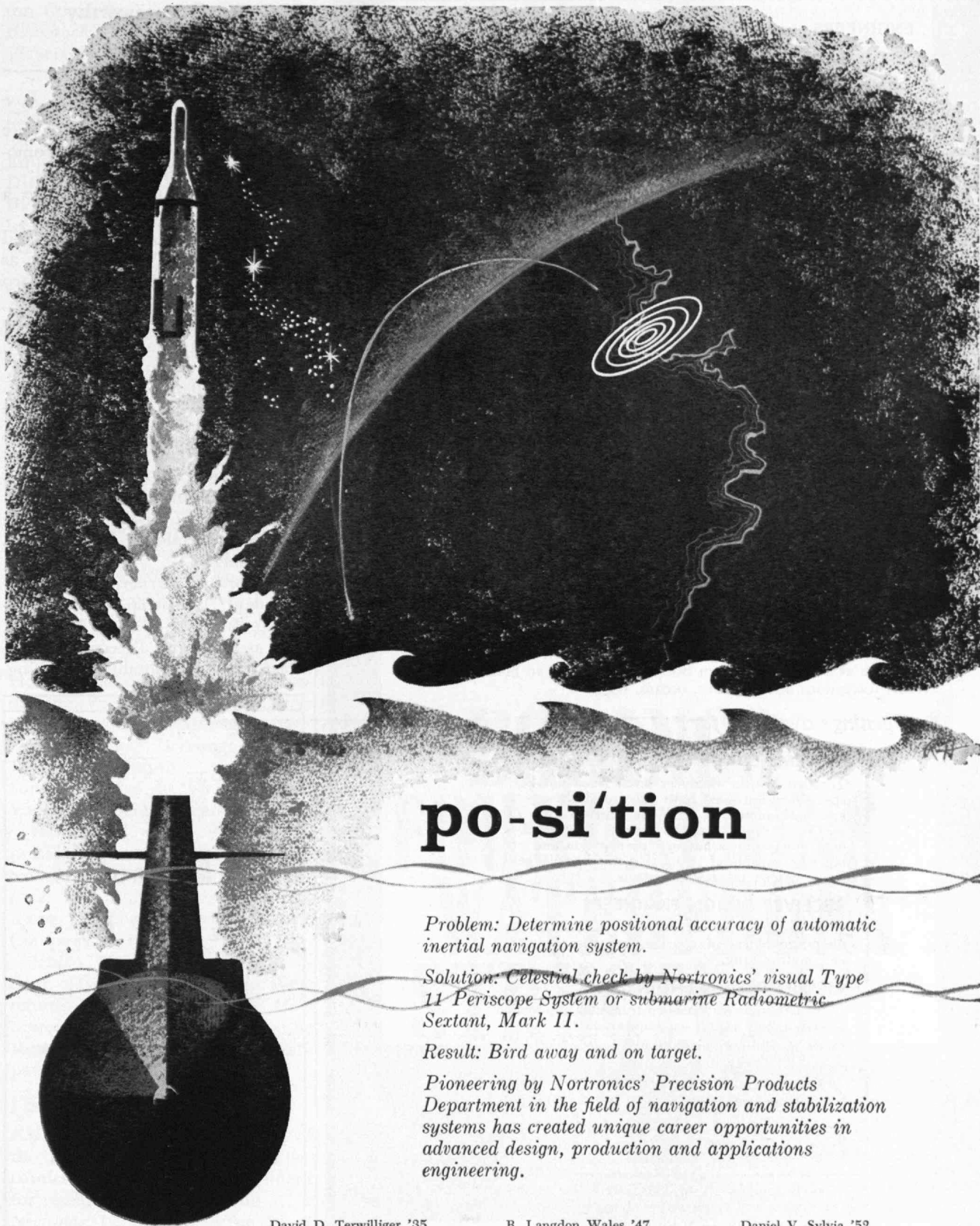
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Individuals Noteworthy

(Continued from page 12)

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments follow:

Archibald P. Cochran, '20, as a Director, Anaconda Company . . . Abbott L. Johnson, 2d, '22, and E. Bird Kelly, '26, respectively as Chairman and President, Glasco Corporation . . . Floyd W. Buck, '29, as Engineering Manager, The United Illuminating Company, New Haven, Conn.;

John F. Bennett, '30, as Treasurer, Goodyear Tire & Rubber Company . . . Edwin S. Worden, Jr., '31, as Executive Vice-president, Edgar Steiner and Company, Inc., Research Engineers, New York City . . . William C. Allen, '34, as Vice-president, Haloid Xerox Inc., Rochester, N.Y.;

Howard S. Turner, '36, as Vice-president, Industrial Research Institute, Inc. . . . Gordon W. Hunt, '38, as Assistant Director of Research and Development, Topping

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ton Company . . . *Benjamin W. Badenoch*, '39, as Vice-president, Vickers Incorporated, Detroit;

Marshall W. Gabel, '39, as General Manager, Eastman Kodak Company . . . *Theodore A. Edwards*, '40, as Manager, Mining Equipment Division, New York District, Eimco Corporation . . . *Burnham Kelly*, '41, as Head, College of Architecture, Cornell University;

Eugene A. March, '41, as Director of Metallurgy, Crucible Steel Company . . . *Jake T. Nolen*, '41, as a Production Manager, Film Department, E. I. du Pont de Nemours & Company . . . *Warne P. Johnson*, '42, as President, Pettit Paint Company, Belleville, N.J.;

George I. Toumanoff, '42, as Consultant to Airborne Instruments Laboratory, Cutler-Hammer, Inc. . . . *Ralph E. Leader*, '43, as Manager, Microwave Cooking Department, Raytheon Company . . . *Robert C. Snyder*, '43, as Chief of Research, Department of Economic Development, State of Maryland;

Joseph J. Schaefer, Jr., '44, as Treasurer and a Director, Horn and Hardart Baking Company, Philadelphia, Pa. . . . *David R. Clare*, '45, as Production Manager, Eastern Surgical Dressings Plant, Johnson & Johnson . . . *Roger P. Sonnbabend*, '46, as Vice-president, Young Presidents' Organization;

William M. Oard, '48, as Vice-president, Modern Talking Picture Service, Inc. . . . *John R. Whitford*, '49, as Manager, Electronic Tube Division, Sperry Gyroscope Company;

Hideo Mori, '52, as Vice-president, Hydrex, Incorporated, Weymouth, Mass. . . . *Carroll M. Martenson*, '54, as President, Hydraulic Research and Manufacturing Company, Burbank, Calif.

Formerly at M.I.T.

EMANUEL R. PIORE, formerly of the Research Laboratory of Electronics, is now IBM Vice-president for research and engineering . . .

Nicholas U. Mayall, formerly of the M.I.T. Radiation Laboratory, is the new director of the Kitt Peak National Observatory . . . *Raymond A. Bauer*, formerly of the Center for International Studies, has become Professor of Business Administration at Harvard.

(Continued on page 74)

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Individuals Noteworthy

(Continued from page 73)

Institute Prizes

RECIPIENTS of prizes at M.I.T. commencement exercises included *Michael Modell*, '60, the Hunne-man prize for originality in chemical engineering; *Louis Carmelo Tedeschi*, '60, the American Bureau of Shipping prize for scholarship; *Bahij Kahil Saba*, G, the Ross F. Tucker and Walter C. Voss award for outstanding promise in building engineering and construction; *Walter R. Marsh*, '60, the James Means Memorial Prize for professional promise in aeronautics and astronautics; and *Sheila M. Evans*, '60, the Henry Webb Salisbury Memorial Award for outstanding work in aeronautics and astronautics.

Architectural prize winners were *Gustave M. Solomons, Jr.*, '60, the Alpha Rho Chi Medal; *Robert Goodman*, '60, the Ernest A. Grunsfeld, Jr., Traveling Fellowship; *Ted A. Niederman*, '60, and *Charles T. Stifter*, G, Rotch Prizes; and *Howard D. Hershberger*, '60,

the School Medal of the American Institute of Architects.

Samuel W. Stratton prizes to encourage skill in debating went to *Howard W. Hayden, Jr.*, '60, *Richard F. Smith*, '60, *Dan M. Gourley*, '63, and *Ernest S. Wanner*, '63.

The Silent Hoist and Crane Company Materials Handling Award went to *John R. Blutt*, '61, *Harry K. Clark*, 2d, '60, *Richard F. McRay*, '61, *Robert C. Ried, Jr.*, '61, *Alfred E. Traver, Jr.*, '61, and *Melvin E. Walker*, '62.

Ingenuity Hailed

LUIS DE FLOREZ awards went this year to *Pieter R. Mimno*, '60, in aeronautics and astronautics, and to *David G. Eglinton*, '61, *Stuart A. Lichtman*, '61, and *John A. Robinson*, '61, in mechanical engineering.

Honorable mention went to *William M. Eldridge*, '60, *Andrus Viilu*, '60, *Robert G. Gottlieb*, '60, and *Igor Paul*, '60.

These prizes are for outstanding ingenuity and the work honored included both a space vehicle to explore the moon and a proposed attachment for a typewriter to enable a blind man to type in braille.

Off to Africa

SIX M.I.T. MEN packed knapsacks in June to go to West Africa to work on community projects—building bridges, schools, irrigation ditches and churches. They were *Harold E. Dodds, Jr.*, '60, *John B. Edwards*, '60, *David C. Montgomery*, '60, *Salomon Seroussi*, '60, *Jonathan W. Bulkley*, '61, and *Benson T. Chertok*, a graduate student. They will be "working ambassadors" for "Crossroads Africa," a project started in 1958 under the leadership of a New York minister.

Engineering Chairman

PROF. A. M. GAUDIN of M.I.T. has been elected chairman of the Engineering Foundation, the research department of United Engineering Trustees, Inc., and *Augustus B. Kinzel*, '21, has been elected to its board. United Engineering Trustees, Inc., has five constituent societies, each of which is a major national engineering organization, and is building an 18-story United Engineering Center in New York City.

(Concluded on page 76)

New Books from the Technology Press

The American Civil Engineer: Origins and Conflict

By *Daniel H. Calhoun*

A historical study of the development of the profession of civil engineering which considers the careers of engineers from the late 1700's through the 1840's. Mr. Calhoun discusses the engineer's tasks, the creation of a pool of technicians, and the profession's historical growth. \$5.50

Word and Object

By *Willard V. Quine*

A study of the basis of meaning and of communication—the relationship between the stimulations (both verbal and non-verbal) and the linguistic responses which can be correlated with them. In the course of the discussion, Dr. Quine pinpoints the difficulties involved in translation, brings to light the anomalies and conflicts implicit in our language's "referential apparatus," and clarifies the semantic problem connected with the imputation of existence. \$5.50

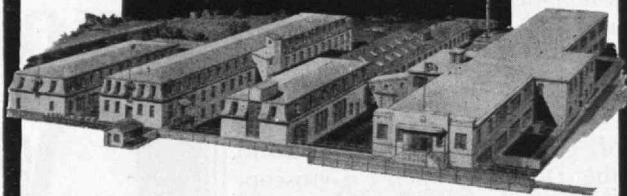
Dynamic Programming and Markov Processes

By *Ronald A. Howard*

This book defines discrete- and continuous-time Markov processes, provides a physical insight into their behavior, and shows how to solve them by means of operational transformations. It shows a new method for making optimum decisions in processes of long duration. This policy-iteration method is applicable to processes with either discrete- or continuous-time dependence, and either with or without discounting as important element. \$5.75

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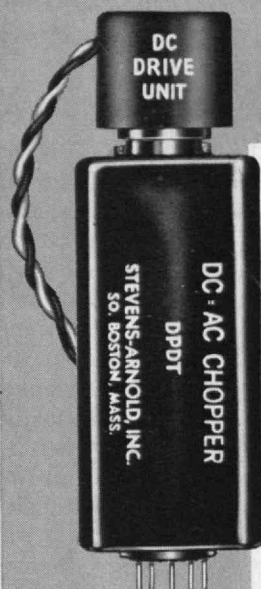


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Individuals Noteworthy

(Concluded from page 74)

Honors to Alumni

MEDALISTS and recent recipients of other distinctions include:

Eugenio Garza-Sada, '14, named Distinguished Executive of the Year, by *Ejecutivos de Ventas de México* . . . *Samuel Schenberg*, '20, the Educational Award for 1960, by the New York Chapter, American Society for Metals . . . *Julius A. Stratton*, '23, an honorary doctorate of laws, by Carleton College, Northfield, Minn.;

John W. Sibert, Jr., '25, the George W. Goethals Medal, by the Society of American Military Engineers . . . *Charles S. Draper*, '26, the Exceptional Service Award, by the U.S. Air Force . . . *Harold W. Fisher*, '27, an honorary doctorate of science, by Clarkson College of Technology, Potsdam, N.Y.;

Ellis A. Johnson, '28, an honorary doctorate of science, by Case Institute of Technology . . . *James B. Fisk*, '31, an honorary doctorate

of science, by Columbia University . . . *Richard S. Morse*, '33, an honorary doctorate of science, by Clark University;

Walter H. Stockmayer, '35, a 1960 College Chemistry Teacher Award, by the Manufacturing Chemists' Association . . . *Edward B. Cooper*, '40, an honorary doctorate of science, by Berea College, Berea, Ky. . . . *George H. Hotte*, '43, an honorary doctorate of textile science, by New Bedford Institute of Technology.

Military Awards

CADET COLONEL *Robert S. Troth*, '60, of the U.S. Army ROTC at M.I.T., received both the "Superior Cadet Award" and the American Ordnance Association Scholarship Key on the Institute's annual Military Day.

Winners of the Chicago *Tribune* medal were: *Barry R. Bronfin*, '60, *Steven N. Goldstein*, '61, *Richard M. Harris*, '63, and *Roger M. Rowe*, '62 (from the Navy); *Robert R. Barthelemy*, '62, *Michael P. Feder*, '61, *Leland B. Jackson*, '62, and

Ronald H. Lison, '61 (from the Air Force); and *Reed H. Freeman*, '61, *Arthur B. Krewinghaus*, '63, *Robert A. Lytle*, '62, and *Mr. Troth* (from the Army).

Postdoctoral Fellows

NEXT YEAR, 10 Sloan Foreign Post-doctoral Fellows will be at M.I.T. Their names, countries, and fields of study follow: Robert Blinc, Yugoslavia, nuclear magnetic resonance; Fausto Calderazzo, Italy, metal-organic complexes; Yeshwant Bbaskar Damle, India, Indian social structure; Herta von Dechend, Germany, protohistoric material of myths and legends; Karl Fischer, Germany, zeolite crystal structures; Allan Edmund Mitchell, Britain, high performance control valves; Kazuo Noda, Japan, theory of human organization; Toru Ogawa, Japan, microwave time and frequency standards; C. H. Perry, Britain, spectroscopy in the far infra-red; Hiroshi Tanaka, Japan, path functions of Markov processes. They will work in the School for Advanced Study.



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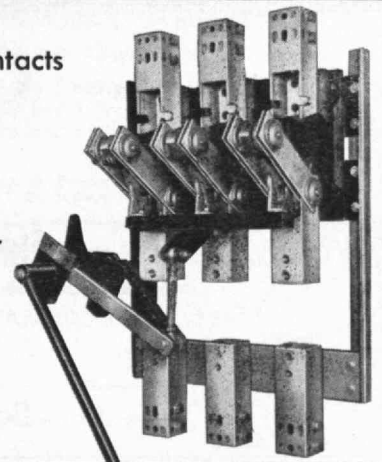
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Lowell Institute Class Hears Lester R. Grohe

THE 56TH GRADUATION exercises of the Lowell Institute School were held on May 19 in Kresge Auditorium. More than 100 certificates and diplomas were presented by Ralph Lowell, trustee of the Lowell Institute and life member of the M.I.T. Corporation.

Dr. Lowell announced that F. Leroy Foster, '25, who has been serving as acting director of the School, had been appointed director, and Dr. Foster presided over the exercises. Carl F. Floe, '35, Vice-president, Research Administration, brought greetings and congratulations from M.I.T. to the graduates.

Lester R. Grohe, an alumnus of the Lowell School, and chief engineer of the Nortronics Corporation, addressed the graduates. He dealt with the question of "Where are you going from here?" after pointing out that evening school graduates often were fearful that their lack of a professional degree would impair their opportunities for advancement. But, he continued, as a student group, these men were unique, all carrying full-time jobs in industry, many supporting families, all studying at night and in their leisure time. He concluded that these established work habits combined with increased educational efforts should insure success.

James Aitken, a Lowell graduate in 1936, presented the 15th Charles Francis Park medal to the outstanding graduate, Domiano Cosmo Papa, who received his degree in the Mechanical Course. Mr. Papa is employed as a senior technician in the Research Laboratory of Electronics at M.I.T.

The Review is not published during the summer months following July. This issue, therefore, concludes Volume 62. Number 1 of Volume 63 will be published on October 27 and dated November. Readers who bind their copies are reminded that if they possess nine issues of Volume 62 their files are complete. An index to the volume will be ready on September 15 and will be supplied post free upon request.

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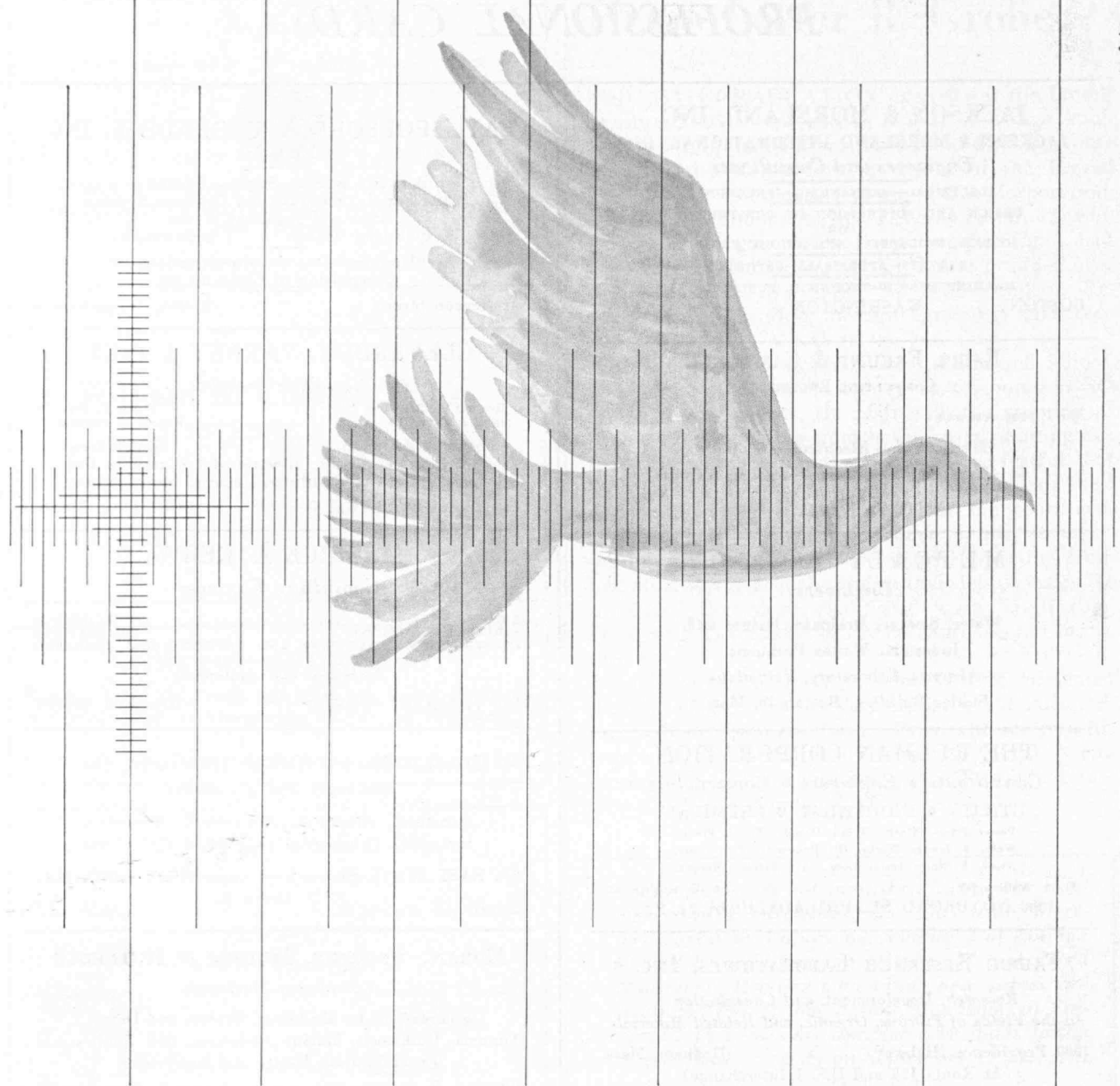
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Club Notes

Massachusetts Club Attends Boston Pops

On Sunday, May 8, 1960, the M.I.T. Club of Central Massachusetts had their fourth meeting of the year at the Faculty Club. President Haskell R. Gordon'38 was the chairman of the meeting.

We were very fortunate to obtain a block of tickets through M.I.T.'s Baton Society, which provided excellent seats in the center of the floor of Symphony Hall. This is the first time that we have been able to get tickets for Tech night at the Pops. The Worcester club found that the dinner meeting at the Faculty Club, combined with an evening's entertainment at the Pops, has been one of our most successful programs for everybody's enjoyment over the past several years.

At the dinner meeting Robert T. Dawes'26, formerly president of the M.I.T. Club of Central Massachusetts, proposed the following slate of officers for the 1960-1961 year: President, Haskell R. Gordon'38; Vice-president, Irvine F. Williamson'50; Vice-president, Arthur Lowery'32; Treasurer, Robert N. C. Hessel'27; Secretary, Harry B. Duane'57; Assistant Secretary, Edward Dawson'51.

The executive committee for next year will be: George R. Blake'39; Robert H. Brown'22; Robert T. Dawes'26; Richard H. Harris'48; Harry J. Kahn'20; Thomas Kelly, Jr.'51; Max Levine'25; Carl F. Mellin, Jr.'50; Harrison N. Thibault'49; Don M. Whitehead'45. — HARRY B. DUANE'57, *Secretary*, 15 Algonquin Road, Worcester, Mass.

Dr. Stratton Guest Of Virginia Club

President and Mrs. Stratton were the honored guests of the M.I.T. Club of Virginia at the spring meeting held at the Hermitage Country Club in Richmond on April 22. Sixty Alumni, Alumni guests, their wives and guests were present for a very pleasant social hour, a dinner and a most inspiring speech by Dr. Stratton. Invited guests were present from as far away as Washington for the occasion, including Charles E. Loucks'31, President of the M.I.T. Club of Washington.

Dr. Stratton told the group that the main concern of M.I.T. was "teaching." While a great deal of glamor comes from the research projects, M.I.T. will rise or fall on the product it produces, namely "brains." Concern was expressed for the effect on M.I.T. of the extremely stringent entrance requirements, as a large number of capable young men are not being admitted who probably could contribute much to the Institute.

President Stratton said he was very pleased with the results being obtained from the "Zacharias Project," which has resulted in a new approach to high school physics. In time the revenue from this project will be sufficient to cover the cost of this educational program. — CARSON L. BROOKS'35, *Secretary*, c/o Reynolds Metal Company, 4th and Canal Streets, Richmond, Va.

Dean Burchard Guest At Kansas City Club

The M.I.T. Club of Kansas City held its spring meeting on Wednesday, March 23. Present were club members and guests from several scientific societies of Kansas City, and high school science teachers and counselors from the Kansas City area. The teachers and counselors were sponsored by several local industries. These industries

included Sheffield Division, Armco Steel Corporation, Cook Paint Company and Seidlitz Paint Company.

The meeting started at 6:00 P.M. with a cocktail and social hour, followed by dinner. After dinner John E. Burchard'23, Dean of the School of Humanities and Social Science at M.I.T., spoke to the group about some of the exciting new projects at the Institute and indicated the desire and progress of M.I.T. to give a complete, well-rounded education to its students. Dean Burchard also showed films made at M.I.T. to be used in teaching elementary mechanics and crystal formation. — BARTON L. HAKAN'42, *President*, Missouri-Kansas Chemical Company, 1708 Campbell, Kansas City, Mo.

Western Maine Club Hears John Newell'34

About 35 Alumni, ladies and guests were present at our spring meeting held on May 6 at the Lafayette Hotel in Portland, Maine. A pleasant social hour renewing old acquaintances was followed by dinner. John R. Newell'34, President of the Bath Iron Works Corporation, then outlined the role his firm is playing in the Navy along with some of the problems. He also offered some comments on the recently released engineering and economic report on the Passamaquoddy Tidal Power Project. Mr. Newell was introduced by Club President Bill Richardson'44. In the course of the introduction, Bill added to John Newell's store of naval lore connected with "Bath built ships," by relating an incident that happened to him during World War II. The meeting broke up about 10:00 P.M.

As secretary, I would appreciate hearing from any new Alumnus in the area who would like to be informed of our meetings. — ROBERT A. LINDQUIST'51, *Secretary*, 1 Farm Hill Road, Cape Elizabeth, Maine.



Dr. Stratton (seated sixth from left at rear) spoke at the Hartford, Fairfield, New Haven Clubs' joint meeting on May 16.

M.I.T. Club of Chicago Elects New Officers

On February 10, fifty hearty souls from the M.I.T. Club of Chicago braved one of the worst snow storms of the season to be the guests of Sears Roebuck and Company — the largest mail order house in the world. The group was broken up into two sections, one of which observed the highly conveyORIZED and automatic mail order warehouse of Sears, and the second group went through the extensive quality control facility used to test every product sold by Sears in both their retail stores and their mail order operation.

Following a question and answer period, after each group had completed its tour, we were the guests of Sears for lunch. Then we were broken up again into two groups and each one saw the operation previously viewed by the other group. This was an extremely interesting plant visit, thoroughly enjoyed by all attending.

On April 12, the fourth meeting of the club was held at the First National Bank at which time the annual meeting was conducted and the following were elected officers for 1961: President, Edgar F. Seifert'19; Vice-president, John R. Kirkpatrick'48; Secretary, Warren J. Meyers'41; Treasurer, Mark H. Baxter'50; Directors to serve two years, Joseph E. Dietzen'41 and E. Charlton Crocker'43; and Director to fill the unexpired term of John Kirkpatrick, Joseph H. Myers'41. Following the annual meeting and a delicious lunch served us by the First National Bank, we were privileged to listen to the bank officers discuss "Common Language Data Processing" — a technique developed by the bank and other co-operative banks for the automatic processing of checks. This technique has been developed due to the enormous manual load on bank personnel resulting from the daily check flow. For example, on an average day 700,000 checks are processed by the First National Bank and on a peak day (following holidays, weekends, etc.) well over 1,000,000 checks are processed. In addition to the checking transactions there are approximately 10,000 savings account transactions consummated on a peak day, together with other miscellaneous monetary transactions (i.e., travelers checks).

In an attempt to reduce the work load and automate these transactions, a system of common language numerals and characters, which should be printed in magnetic ink on the checks, has been developed, and equipment has been ordered to read this language and automatically process the checks. The program was concluded by a film and a brief trip to the operating departments of the bank. — ROBERT L. SILBERMAN'48, *Secretary*.

New Hampshire Club Hears Dean Brown

The M.I.T. Club of New Hampshire held its annual meeting at the Manchester Country Club on Friday, May 6. Following a social hour, dinner was served in the main dining room to 53 members and guests. Officers were elected for the ensuing year, as follows: President, Glenn D. Jackson, Jr.'27, of Amherst; Vice-presi-

dent, M. Arnold Wight'40, of Amherst; Secretary-Treasurer, Blaylock Atherton'24, of Nashua; and Representative to the Alumni Council, Lawrence C. Hall'35, of Amherst.

Alumni Secretary Don Severance'38, with his charming wife and attractive daughter, was present and Don introduced our speaker, Dr. Gordon S. Brown '31, Dean of Engineering. Dr. Brown gave a most interesting talk on engineering education. He brought out that at present there is a great trend from engineering to science and that enrollment in mechanical engineering at the Institute has been decreasing while enrollment in physics was on the increase. However, he emphasized that the world would always need engineers and he felt that the pendulum would soon be swinging in the other direction.

Among those present were: George E. Apel'26, Blaylock Atherton'24, Jason T. Bickford'23, Salvatore Caso'59, F. Tenney Clough'38, Philip N. Cristal'17, Walter Davol'06, Walter H. Gale'29, Carl Hall'08, Lawrence C. Hall'35, Leigh S. Hall'14, Sidney Hall'43, Earl R. Hamilton'09, Paul F. Hayner'51, Glenn D. Jackson, Jr.'27, John H. Kellogg'44, William Kwan'54, Leon W. LaBombard'41, Philip Labombard'47, Roger E. LeBlanc'36, Sing Leong '45, Julian Lovejoy'22, Roger Moss crop '20, Norman Randlett'22, Renald Rivero '54, Francis J. Safford'34, Henry E. Strout '17, Roger R. Smith'26, Thomas W. Thompson'48, Davis P. Thurber'48, M. Arnold Wight, Jr.'40, Herbert D. Swift'15 and Martin Trust'58. — BLAYLOCK ATHERTON'24, *Secretary-Treasurer*, 142 Main Street, Nashua, N.H.

Washington Club Hears Stubbs Speak on Warfare

One hundred and sixteen members and guests of the M.I.T. Club of Washington attended the spring dinner meeting held on May 13 at the Cosmos Club in Washington. After a brief social hour and excellent dinner they heard the speaker of the evening, Major General Marshall Stubbs'39, chief chemical officer, U.S. Army, talk on the serious threat of biological and chemical warfare to the U.S. and the world. General Stubbs, after being introduced by the club president, Major General C. E. Loucks'31, U.S.A. (Ret), discussed the various types and methods of distribution of biological and chemical agents available to an aggressor nation. He pointed out that the best answer for the defense of the U.S. and the free world was to maintain a strength in both chemical and biological warfare agents for use as counter weapons against any aggressor. A lively question and answer period followed the talk.

At the annual business meeting for election of officers which preceded General Stubbs' talk the following were elected officers as well as members of the executive committee for the forthcoming year: William R. Ahrendt'41, President; Ernest W. Reisner'30, First Vice-president; John J. Phillips'38, Second Vice-president; Lt. John G. Beebe-Center, Jr.'56, U.S.C.G., Secretary; and Selden Saunders '57, Treasurer. In addition to the above officers the following were elected as

members of the executive committee: Major General Charles E. Loucks'31, the immediate past president; C. Ford Blanchard'22, William C. Howlett'49, Commander Sterling H. Iverson, Jr.'41, U.S.N., Michael K. Johns'53, Nicholas P. Stathis'29, Paul M. Robinson, Jr.'2-44, and George R. Thompson, Jr.'53. — JOHN G. BEEBE-CENTER, JR.'56, *Secretary*, 3516 Lowell Street N.W., Washington 16, D.C.

Rolf Eliassen Speaks To M.I.T. Club of Norway

Ove G. H. Collett, Jr.'49, President of the M.I.T. Club of Norway, introduced Professor Rolf Eliassen'32 on April 18 at the club's spring meeting. Professor Eliassen, who was in Oslo as a consultant to the Norwegian government, spoke on "Recent Developments in Engineering at M.I.T.," and included information on the present fund-raising campaign at M.I.T. About 50 members and wives were present to hear Professor Eliassen and another speaker, Mr. Baalsrud, a newspaper reporter, who spoke on a recent trip to the United States.

Northern New Jersey Holds Ladies Night

The annual ladies night and dinner meeting, held May 10 at the Hotel Suburban, East Orange, had a highly amusing after-dinner speaker, Harry Devlin, a commercial illustrator and cartoonist. Mr. Devlin's humorous account of a cartoonist's business was enlightened by caricatures drawn as he talked before his large audience. Charlotte Montgomery, columnist for *Good Housekeeping*, who originally was scheduled for the evening, is to appear at the 1961 ladies night.

Mr. George M. Warner'91, who was made an honorary member of the club in 1951, was seated on the dais with the officers. Mrs. Byrne, wife of Philip Byrne '20, won a lamp donated by Joseph Wenick'21 of Lightolier, Inc., as a door prize. The second door prize was won by Jesse Haines'48. Officers elected for the 1960-61 season were R. J. Ozol'36, President; W. I. King'48, Vice-president; H. G. McGrath'36, Vice-president for programs; H. E. Milius'38, Secretary, and J. Wenick '21, Treasurer. Elected to the Board of Governors were J. S. Daley'50, S. G. Stearns'39, and D. G. Espey'47.

The club is looking forward to having President Stratton address it next fall. — JAMES J. SHYNE'43, *Secretary*, 21 Smull Avenue, Caldwell, N.J.; HOWARD E. MILIUS'38, *Assistant Secretary*, 9 Tuxedo Place, Cranford, N.J.

St. Louis Club Hears Dean John E. Burchard

The M.I.T. Club of St. Louis was happy to welcome Dean John E. Burchard'23 of M.I.T. on Thursday, March 24, 1960. About 50 members and their wives were present to hear Dean Burchard talk about recent developments at the Institute, including the Center for Communications Science, the Center for International Studies, Course XXI, and some of Dean Gordon Brown's ideas about the new programs in engineering education.

New York City Club Elects New Officers

The annual meeting for election of officers was held on May 16. Officers for the coming year are Ed Goodridge'33, president; Gaby Garbarino'33, Bob Gunther'43 and John Hennessy, Jr.'51, vice-presidents; Dave Buchanan'31, treasurer; Jim Margolis '52, secretary. Three new directors to serve on the Board until 1963 were also elected: Tony Hittl'36, Ted Mangelsdorf'26 and Thornton Smith'45. Ed Edgar '35, currently president of the club, was elected to complete the directorship for one year vacated by Ed Goodridge who was elected president for the coming year. The nominating committee included Gene Smoley'19, chairman, Sax Fletcher'18, Hartselle Kinsey'24, Bob Franklin'34, Jerry Schooler'55 and Joe Wiley, Jr.'40. The meeting was highlighted by a stimulating talk on "Science and the National Scene" by Dr. A. B. Kinzel'21, Vice-president of Research, Union Carbide Corporation. Dr. Kinzel, a Fellow of the New York Academy of Sciences, holds many prominent professional and social positions in the United States and abroad.

Spring found the club blossoming with several activities and an industrious group of members. On April 27, the architects' luncheon was attended by 45 guests who heard Pietro Belluschi, Dean of the School of Architecture and Planning, lead a panel discussion on "Closer Collaboration between Architect and Engineer During the Next Decade." Paul Weidlinger from the Institute and John Hennessy, Jr.'51 were also on the panel. A fine meeting can be attributed to Ira Kessler'45, chairman, and Gaby Garbarino'33, vice-president of major activities.

Out-of-town members often find the club's quarters a good place to meet. Raymond Start'23, visiting from Kansas, recently entertained a party of four at lunch, for example. Speaking of out-of-town, Dix Proctor'17, returned to the city from New Zealand after a visit to the South Pacific.

On May 27, the Long Island section held a father and son night dinner at the

Brooklyn Navy Yard's Officers' Club which included a tour of the Navy Yard. Bob Kress'51 was chairman for this final meeting of the year of the Long Island section. The Westchester section held its final get-together for the year on June 3 with its traditional golf outing and dinner meeting at the Scarsdale Country Club. Hugo Wikstrom'50 was chairman for the meeting.

For the next month, the club's members are going to take a break from meetings and confine activities to the relaxing atmosphere of the dining area and bar, open every weekday, but especially populated between 12 and 2 P.M. — JAMES M. MARGOLIS'52, Secretary, 5 Fenton Street, Rye, N.Y.

M.I.T. Japan Association Welcomes the Burchards

On March 29, 1960, John E. Burchard '23, Dean of Humanities and Social Science at M.I.T., addressed the M.I.T. Association of Japan at a club in Tokyo, following a dinner party in honor of Dean and Mrs. Burchard. There was a good turnout of members, some of whom came accompanied by their wives.

Dean Burchard's primary purpose for going to Japan was to be one of four American speakers at a private colloquium held at Kawana, a few hours away from Tokyo, involving about 25 or 30 Japanese and four Americans in discussions of science and modern society on a philosophical level.

Boston Stein Club Sees Horovitz Films

On Wednesday, May 18, 1960, in M.I.T.'s Hayden Library lounge, the prize winning photographer, raconteur and world traveler, Oscar Horovitz'22, was to have shown some of his new pictorial exploits. Made with the same consummate skill and dramatic creativity that have become a "Hallmark of Horovitz," the films were to have been brand new — never before seen by a Boston audience.

Class Notes

'85

Miss Eliza Prentiss Huntington, the last member of the Class of 1885, was born in 1858 and died on March 24, 1960. She was a special student at M.I.T. In a letter to the secretary written June 1, 1955, she said: "In reply to your interesting letter, I can say that my health is good, for my years. I am the last living member of the Class of 1881 of Smith College. After graduation my teacher in chemistry (Miss Capen) recommended me to Mrs. Richards (wife of Professor Richards) for the Woman's Laboratory of Tech. I began it, and later decided I could not continue, for personal reasons. So I went into the Harvard College library, then under Justin Winsor. After 20 years I was transferred to the Fogg Art Museum. And so the time came when I was needed at home. I look back upon a seven months' visit to Europe in 1892 and a three months' stay in South America in 1926. Now the life of the world is growing more and more interesting as I realize that my time in it must be growing shorter and shorter." — D. DEF.

'88

The following item was received from Carole A. Clarke, Secretary of the Class of 1921, and was taken from the *Newark* (N.J.) *Evening News*: "A. Prescott Folwell, former editor and college professor and author of engineering textbooks, a former resident of Montclair, died here Saturday (March 19) in the home of his daughter, Mrs. Ada Wilson.

"Born in Kingston, N.Y., he received his B.A. from Brown University in 1885. He studied civil engineering at M.I.T. and was awarded a doctorate in science by Lafayette College. He was a practicing consulting municipal engineer and an associate professor of municipal engineering at Lafayette College from 1896 to 1904, when he was made a professor.

"In 1906 he went to Montclair to become editor of *The Municipal Journal*, now called *Public Works*. He retired as editor in 1953 but remained as a consultant to the journal until two years ago. He wrote several engineering textbooks including one on sewerage published in 1897.

"He was a founder and past president of the American Society for Municipal Improvement, a forerunner of the present American Public Works Association. He was a member of the New England Waterworks Association, the American Society of Civil Engineers and Beta Theta Pi and Sigma Xi fraternities.

"He leaves also another daughter, Mrs. Helen Rasmussen, three grandchildren and two great-grandchildren."

Deceased

MISS ELIZA P. HUNTINGTON'85, March 24*
A. PRESCOTT FOLWELL'88, March 19*
WALTER H. ADAMS'03, March 8*
W. LORRAIN COOK'03, March 30*
GEORGE R. ECKEL'05, July 27, 1959*
ROBERT M. FOLSOM'05, no date given*
LAURENCE R. DAVIS'07, October 11*
OLIVER S. JENNINGS'08, April 13*
FREDERICK B. WOOD'09, August 24, 1959
CHARLES A. DUNKEL'10, no date given
LEONARD M. LUSKY'10, no date given
HARRY C. HESS'11, April 6*
EDWARD H. MANGAN'12, February 3*
MORRIS GOLDENBERG'14, October 28, 1959*
F. HASTINGS SMYTH'14, April 16*
HENNING J. BERG'15, April 3*
ARTHUR M. TABBUTT'16, August 17, 1959*
JUDSON C. RICHARDSON'17, December 23, 1959*
MYRON H. LEE'20, March, 1960*
CHRISTOPHER C. CARVEN'21, March 11*

AUBREY S. MCLEOD'21, April 9*
MALCOLM G. DODGE'22, April 22*
HUGH M. DOYLE'22, January 3*
WILBUR A. STEUER'22, March 22*
ARTHUR EDWARDS'23, April 25*
NORBERT H. FELL'23, September 29, 1959
ROBERT VELZ'24, December 19, 1958*
CORBIT S. HOFFMAN, Jr.'25, September 1, 1959*
JOHN DRUM'26, April 23*
ALFRED L. GOVONI'26, April 18
NOEL H. MILLER'27, March 15*
GERALD L. EATON'29, March 22*
MALCOLM D. SEAVEY'29, April 6*
RENATO F. CICCHETTI'35, April 30
WILSON B. KEENE'39, April 30*
ELDERED G. ROBBINS, Jr.'40, March 26, 1958*
FRANK L. LANGHAMMER, Jr.'41, March 17*
SAMUEL SCHWARTZ'46, July, 1959*
ALAN H. VORT'50, May 3

*Further information in class notes.

"I represented Mr. Edward Blackmer and prepared his will in which he bequeathed his property to the Tuskegee Institute in Alabama. Some time before I drew up his will, Mr. Blackmer said that he wanted to help the colored race because he thought that 'they didn't have a fair show.' His wife (Adelaide Sherman, M.I.T. '90) also gave her property to Tuskegee.

"Mr. Blackmer had been retired from business and had bought a place on Rover Street in Plymouth, where he and Mrs. Blackmer resided. I was attorney, too, for Mrs. Blackmer, who used to confer with me and my wife at great lengths, telling of her days at Tech and of her teaching career at Wellesley. I am sorry to say that she died about a year ago so that of course there is no chance to have her add to the memories which you intend to review in *The Technology Review*. Mr. Blackmer prided himself on his memory of his Tech classes and on his ability to recite the value of Pi out to several decimal points."

The above are some excerpts from a letter from an attorney with a sensitive conscience and a very warm heart. He gives some vivid glimpses of Edward Blackmer's closing years and shows that even though Edward was sick, tired and lonesome towards the end, there yet was one deep desire in his heart—to help these young colored people in far away Alabama who did not have "a fair show." He watched the fund in the bank grow. It

was, we may say, his hope and his consolation.

I should call that life of Edward's, a "victory over death."—WILLIAM CHANNING BROWN, *Secretary*, 36 Foster Street, Littleton, Mass.

The brief notes here transmitted were put together on a jet plane flying at an elevation of 29,000 feet from the San Francisco airport to Boston on May 23. The secretary had been in attendance at the 21st annual meeting of the Institute of Food Technologists, an organization which had its birth at M.I.T. in 1939, at a conference arranged by the food technology division of the former Department of Biology and Public Health. This scientific group, which had its origin here, has a membership of over 6,000 with regional branches in 33 areas in the U.S., Canada and Australia. At the San Francisco meeting, it was the main errand of your secretary to present a memorial plaque to the widow of Professor B. E. Proctor, one of the organizing group in 1939, and later, while head of the Department of Food Technology at M.I.T., elected president of the I.F.T.

A happy feature of the visit to San Francisco was the opportunity to spend two enjoyable days with Jack Nowell and his wife at their lovely home in Hillsborough. This was a sort of continuation of a visit last October which has been mentioned in these class notes. Of course many M.I.T. men were at the convention,

and more than 60 were in attendance at the annual M.I.T. breakfast.

A month earlier, your secretary attended the annual meeting of the Refrigeration Research Foundation at Miami and terminated his tenancy of the position of Chairman of the Board of Governors by being projected into that of Honorary Chairman of the Board. He was in the former position for 16 years, dating from the organization of the foundation. It seems to have been his fate to have been in at the beginnings of these scientific bodies, and he has certainly derived great pleasure from them. Having no better news to transmit, at this time, he seems forced, though unwillingly, to tell of his own recent pleasant experiences.—SAMUEL C. PRESCOTT, *Secretary*, Room 16-317, M.I.T.

As the class notes for this July issue had to be in the editor's office by May 14, we could not include a report of our proposed annual meeting on June 13. At present we have received regrets from seven members: Luther K. Yoder, Ralph R. Lawrence, C. Willard Bigelow, Robert D. Farquhar, Dorville Libby, Jr., Judson C. Dickerman, and Frederick W. Harris, who wrote on May 5 from New Smyrna Beach, Fla.: "No reservations. Will be 88 years old on September 1, as is our secretary, L.K.Y. Mrs. H. is to be 84 on August 4. We were married on March 27, 1901. Regards to all present on June 13."

Charlie Berry of Lexington, Mass., says, by phone, that he gets out when the weather is good and walks a mile but cannot make a trip to the annual meeting. His home telephone at 1088 Massachusetts Avenue is VO 2-0716, in case any of the boys can give him a call. . . . Luther Conant, 46 Shepard Street, Cambridge 38, Mass., phoned to say that there is no chance of his going to the annual meeting, as he has been confined to the house for some years. His number is KI 7-3399. . . . George A. Cutter, 215 Village Avenue, Dedham, Mass., phoned on May 11 and said he would like to go but he is not able to.

Alfred P. Sloan, Jr., our president, has again won public esteem as shown by this May 13 front-page clipping from the *Boston Herald*: "An unrestricted grant of \$5,000,000 to the Massachusetts Institute of Technology from the Alfred P. Sloan Foundation of New York was announced yesterday. The Sloan Foundation president and honorary chairman of the General Motors Corporation directed that the fund be used for 'people as distinguished from projects' and in his announcement of the grant added: 'The Foundation leaves to the discretion of the Institute the manner in which the fund will be expended. If the Institute elects to do so, it may expend the principal of the fund. As a matter of fact, the Foundation so recommends because it believes it is important to proceed as rapidly as possible to strengthen and expand basic research in American universities.'

"Julius A. Stratton, M.I.T. president, said that this 'magnificent grant' was 'in keeping with the deep interest of Mr.

Happy Birthday

Birthday greetings are in order during July, August and September to two Alumni who are due to celebrate their 95th anniversaries; and to 10, 19, and 28 Alumni who are due, respectively, to turn 90, 85, and 80, as listed below with dates of birth:

August, 1865—WILLIAM L. HILLYER'87 on the 2nd and MISS SARAH E. POTTER'06 on the 15th.

July, 1870—CHARLES H. JOHNSON'92 on the 9th; ALFRED M. BROOKS'97 on the 19th; EMIL LORCH'93 on the 21st; and FENWICK F. SKINNER'93 on the 25th.

August, 1870—CHARLES E. WILSON'91 on the 3d; WESLEY HALLIBURTON'52 on the 21st; and HARRISON I. COLE'91 on 23d.

September, 1870—EDWARD S. BLACKMER'91 and FRANK E. PERKINS'92 on the 9th; and WILLIAM F. KEENE'91 on the 15th.

July, 1875—ROGER W. BABSON'98 on the 6th; MRS. MARY H. WELLS'97 on the 15th; HENRY M. LOOMIS'97 on the 19th; JOSEPH L. HERN'99 on the 20th; HERBERT H. DAKIN'99 on the 26th; WILLIAM BINLEY'97 and CHARLES F. WHITING'99 on the 27th; and WILLIAM H. CLIFFORD'96 on the 28th.

August, 1875—DAVID C. FENNER'98 on the 5th; SAMUEL A. NEIDICH'98 on the 13th; CHARLES A. KRAUS'08 on the 15th; ARTHUR C. WALWORTH'00 on the 16th; JOHN B. TAYLOR'97 on the 20th; and CARL S. HIGH'98 on the 22d.

September, 1875—CHARLES D. DREW'99 on the 13th; HENRY H. CLARK'98 on the 15th; ARTHUR S. KEENE'98 on the 21st; MRS. ARTHUR A. BLUNT'03 on the 23d; and HOWARD B. COLLINS'98 on the 27th.

July, 1880—CHARLES G. TUFTS'01 on the 8th; FRANK A. SCOTT'10 on the 10th; FRANK F. HASBROUCK'06 and ROBERT S. WILLIAMS'02 on the 11th; LEWIS W. GRAVES'03 on the 24th; WADE L. WETMORE'02 on the 27th; ALBERTO MADERO'02 on the 29th; and FRANCIS BRADLEY'02 on the 31st.

August, 1880—CARLTON B. ALLEN'02 on the 3d; GEORGE B. SEYMS'03 on the 5th; MISS FRANCES P. WEBSTER'06 on the 6th; EMILIO MADERO'02 on the 8th; MRS. KENNETH L. MARK'04 on the 13th; PERCY H. PHYSECK'05 on the 18th; EDWARD WASTCOAT'04 on the 19th; HAROLD M. LEH'04 on the 22d; GEORGE E. SIBBETT'03 on the 23d; ROBERT W. MCLEAN'05 on the 24th; and EDWARD G. COLE'04 on the 31st.

September, 1880—ROBERT W. DANIELS'03 on the 3d; WILLIAM J. SNEERINGER, JR. '05 on the 4th; HERBERT S. BAILEY'05 on the 12th; AUSTIN T. HYDE'01 on the 13th; LELAND S. WOODRUFF'06 on the 19th; ALBERT J. LINDSLY'01 on the 20th; MRS. JASPAR WHITING'04 on the 22d; ROBERT F. CRARY'04 on the 28th; and MISS GRETA GRAY'01 on the 30th.

With the addition of these 59, the rolls of the Alumni Association will include a total of 95 nonagenarians and 774 octogenarians.

Sloan and the Foundation in the advancement of American science and engineering. Since the grant is not restricted, it imparts a flexibility to the Institute's program which cannot be supplied by any other means. Such support permits the scholar to search out his own way in fields of investigation where no one has been before, where no specific end is in sight."

On May 14, the *Boston Herald* printed an editorial about the Sloan gift titled, "Look, No Strings!" Following are a few excerpts from this editorial: "If there's any kind of string on the most recent Sloan gift to M.I.T., this one of \$5,000,000, it's no tighter than a slipknot. This latest largesse from the Institute's distinguished Alumnus amounts to an academic president's dream.

"This aims at a whole man of science, mellowed with humanities, not a copy-book specialist. On grants like this, the best in promising scholarly brains can probe the horizons of 'pure' science with no break for commercials. There's no end objective of wrapped and trade-marked packages to be sold over a counter."—LUTHER K. YODER, *Secretary*; A. D. FULLER, *Assistant Secretary*.

'96

There was a picture on the front page of the *Boston Herald* of three men who were attending a meeting of the Associated Harvard Clubs of Cambridge in May. "The center represents the oldest Harvard class, 1885, at the meeting." On either side were members of the class of 1896. The list of members attending the M.I.T. Alumni Council in April gave similar positions for '95 and '96; usually Professor Prescott '94 attends. There is nothing that can be done about our chronological place, but if classmates will take a few minutes to write the secretary, '96 may continue to keep a place in The Review notes.

Myron Pierce and his wife spent the winter in Florida. Their rooms in the hotel looked over the Miami River and Biscayne Bay. Mrs. Pierce particularly enjoyed the view since she was unable to walk about. Myron has not yet overcome the effects of penicillin poisoning of two years standing. They came home to Wellesley in April.

Henry Hedge goes regularly to the nearby country club but doesn't play golf any more; he confines his activities to indoor sitdown games. He will go to Plymouth this summer and probably forego fishing, and leave the coast clear for someone else to catch the most mackerel. The boat that was used mostly for fishing is still in storage; grandchildren now maintain the family reputation in sailboat races.—JAMES M. DRISCOLL, *Secretary*, 129 Walnut Street, Brookline, Mass.; HENRY R. HEDGE, *Assistant Secretary*, 105 Rockwood Street, Brookline, Mass.

'97

Will the classmates attending the events of Alumni Day please tell those who, like your secretary, were unable to

be present, about the get-togethers and incidents of the day? We would be very happy to hear all about it.

I wish each and every member of the class a happy and satisfying vacation season.—AUGUSTUS C. LAMB, *Secretary*, 61 Hillcrest Place, Amherst, Mass.

'99

James C. Dryer of Rochester, N.Y., retired in 1940. From 1946 until 1957 he wintered in Camden, S. C. His wife died in July, 1958. Recently he, his daughter and his son moved from 2 Greenfield Lane in Rochester to 50 Greenfield Lane.—BURT R. RICKARDS, *Secretary*, 349 West Emerson Street, Melrose 76, Mass.

'01

I have the following from Winthrop St. Clair, IV, in Boston: "Am still working—helping to carry on the business of an architectural office—doing schoolhouses, hotels, detention units for delinquent youths and miscellaneous telephone buildings, which gives little time for interesting experiences to write about. But I do appreciate the class reports." . . . Relative to the mistake I made in reporting on the last reunion; when I substituted Isham's name for Arsem's, I received the following letter: "Your 58th reunion report was not such a bad mistake for I was there in favorable spirit. We have not yet completed the project of mental telepathy but it seems to work. Thanking you, with the best regards to Ed Davis and all. Alonzo K. Isham, II, Seattle, Wash."

From Nat Patch, II, Buffalo, N.Y.: "Looking forward to the class reunion of 1961 with all good wishes for a representative meeting. I cannot be present since I have practically lost my eyesight and am unable to travel. I do hope that the reunion will be a big success, yet I know we are all getting up in the 80's. My 81st birthday occurred last February and I am fully aware that I am no longer the young blood that I felt to be the case when attending M.I.T. I remember with the greatest of pleasure my attendance at the 40th reunion and regret to note that many of those present at that time have gone to their great reward. My closest friend during my student days, V. F. Holmes, is among those who have passed on and I sincerely regret it. I am sending my warmest regards to all the boys who remember me."

Allen Griffin, V, from California, notes: "Health is good; occupation—helping around the house and yard; hobby—walking, taking short trips." . . . Ed Fleming, III, Los Angeles: "After 44 years with the American Smelting and Refining Company, the last 20 years as consulting metallurgist, I was retired in 1950. Since then I have been retained by them as a part-time consultant on matters relating to the recovery of sulphur from waste gases. I still have hopes of getting east to one of our class reunions."

At this writing, the first of May, I have had 35 class replies as compared with 22

last year. It would seem that my heading on the last sheet of the class letter did some good. There are some who should reply but have not done so. If you don't reply I hope that your conscience troubles you. Till November—THEODORE H. TAFT, *Secretary*, Box 124, Jaffrey, N. H.

'02

Through Dan Patch, news has been received from Harlen Chapman and Arthur Nichols. Chapman came up into Southport, Conn., in April to see his daughter's family off on a trip to Europe, and to celebrate his 80th birthday with his two children and their families. He remained in New England but a few days and then returned to Winter Park, Fla. Nichols says he is in good health and has been able to keep up a limited amount of work. As his letterhead reads consultant landscape architect we presume the work is along that line. He hopes to come east in the latter part of the year and we hope to meet him again.

Frank Robbins has been elected manager emeritus of the Harrisburg, Pa., Hospital which he has served for 42 years, having been president and vice-president of the board of managers, and chairman of the Medical School of Nursing, and the building and completion fund steering committees. . . . On April 14 Patch presented an illustrated talk on the Holy Land, what he calls "Kodaking in God's Country," to a gathering of old people in the lecture hall of the Boston Public Library. We are sure that the old people must have enjoyed it. This is written in May but will be read in July so it is in order to wish all of you a pleasant summer vacation.—BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

'03

Colonel Walter H. Adams, 77, U.S.A. retired, past American Legion Post Commander, past President of the Glendale Reserve Officers Association, former instructor at Cal Tech and later with the Los Angeles County engineering office, died on March 8, 1960, in a Glendale hospital. His home was at 1633 Ard Eevin Avenue, Glendale, Calif. He was born in Worcester, Mass., graduated from the Winchester, Mass., high school, and moved to California 47 years ago, first residing in Pasadena, then in Burbank for seven years, and then in Glendale for the past 30 years.

Adams was a graduate of M.I.T.; taught mechanical engineering in Tientsin, China, from 1908-1913; joined the teaching staff of Cal Tech and later was employed by the county, Rancho Los Amigos. He served on the Selective Service Board at Sacramento and Los Angeles during World War II. He entered the Army in 1918 and received a discharge in 1944 with the rank of colonel.

Colonel Adams was past patron of Burbank chapter OES; past commander of Glendale Post 127, American Legion; assistant commander of Phil Kearney Post,

Pasadena, Sons of Union Veterans of the Civil War, and a member of San Pasqual Masonic Lodge 452, Pasadena. He leaves his widow, Marguerite, and a brother, George, of Montpelier, Vt. Masonic funeral services were conducted in the Fillbach-Bailey Funeral Home, Burbank. He was buried at Fort Rosecrans National Cemetery, Point Loma, San Diego, Calif.

W. Lorrain Cook died on March 30, 1960, in Glen Cove, N.Y., after a period of illness. He was born in Burlington, Iowa, on August 4, 1879. After schooling in Colorado Springs, Chicago and England, he entered M.I.T. Then after graduation, he went with the American Smelting and Refining Company. His mining career took him to South America and Mexico. About 25 years ago, he took a position with the Bureau of Internal Revenue as an engineer and evaluator of natural resources. This interesting phase of his career culminated with his retirement 10 years ago. Then he and his wife, Matilde M. Cook, did a little traveling until the time of his final illness.

Clarence and Ruth Joyce have been enjoying life in the Bahamas. They are leaving for Liverpool on the *Britannia* on June 8.

Your secretary underwent a serious operation early in the winter and is now trying to regain his strength.—LEROY B. GOULD, *Secretary*, 36 Oxford Road, Newton Center 59, Mass.; AUGUSTUS H. EUSTIS, *Treasurer*, 131 State Street, Boston, Mass.

'04

When you read these notes in July the various nomads among the "oughtfourers" will have returned to their bases and perhaps taken off for summer trips to the ends of the earth or way stations. Our treasurer had considered some flitting but our 55th reunion last year left the treasury balance in such an anemic condition that he was afraid it wouldn't last long so he remained at home. Two of the nomads, Harry and Glendora Rollins, paid a short and unexpected visit to Boston recently. Travel seems to agree with them for they were hale, hearty, and bubbling over with interesting conversation. . . . A telephone call has just been received from George Kaiser who says he is in Boston at the Ritz for a few days accompanied by his wife and daughter. The ladies like to come to Boston occasionally on an antiquing binge. We expect to have a talkfest with George before he leaves town.

The above notes were dutifully delivered to The Review Office on the deadline just one week ago. Today we received from President Currier Lang two letters, one sent by Gus Bouscaren and one by Frank Davis. The young lady who presides at the class notes desk in The Review Office has allowed us to submit a late supplement, provided it is brief. The letters must therefore be summarized rather severely. Gus reports that he has a daughter in State Department service and for 10 years or more the Bouscarens have visited her in various parts of the world. They have just returned from a trip via jet to the Orient and Gus describes it

rather enthusiastically, especially Hong Kong which he says is "the most fantastic and extraordinary spot in the world. Between me and my spouse, we pretty well bought out the dressmaker stores of suits and gowns." Coming home they left Tokyo shortly after midnight on Saturday morning March 19 and arrived in San Francisco for a fish dinner on Friday evening March 18.

Frank describes in some detail a fire in his home near Detroit. He had been out of town on business and knew nothing of it until he reached home. Other members of the family were out of the house on errands and only a cleaning woman was there. She smelled smoke, went outside, and a man pulled an alarm. The fire apparently started from defective wiring under the hall floor. The quick alarm saved the house as a whole but the floor in the hall was burned through, and there was considerable loss from flame, smoke and water. The fire occurred on April 20. Glad to hear from you Frank but sorry to get this kind of news. That from Gus Bouscaren was much better.

The next issue of The Review does not come out until November but put a circle around September 15 in your date book. That is the deadline for submitting manuscripts for class notes. Send us something about your summer activities. Best wishes for an enjoyable time.—CARLE R. HAYWARD, *Secretary*, Room 35-304, M.I.T.; EUGENE H. RUSSELL, JR., *Treasurer*, 82 Devonshire Street, Boston, Mass.

'05

Since the only correspondence I have had with my classmates the past month has been regarding the 55th reunion, and since that will be a thing of the past by the time you read these notes, I will refer you to the November issue for a full story of the reunion with my present hope that it will be one of the best. As a result of this correspondence I learn that the Lovejoys, whose attendance at reunions has been about 100 per cent, will be absent this year as Roy had a severe heart attack on a train between Florida and New Orleans in February and was hospitalized in New Orleans for several weeks. He is now back at his home in Lowell, Mass., recuperating slowly. . . . The Nyes were prevented from attending the reunion because of Mrs. Nye's heart problem.

Doc Lewis was unable to attend the reunion because of a previous date "moderating a big oil meeting in London." . . . The Roy Allens couldn't make it because his only nephew was being married in York, Pa., on June 11. . . . The Ed Barrons—because their "oldest granddaughter was graduating at the wrong time." It sounds to me like history repeating itself because just about a generation ago similar excuses were being written about the marriages and graduations of sons and daughters preventing attendance at reunions. Probably some day before long some classmate—Jim Barnes, for instance—will be offering the same explanation about great grandchildren. . . . The Towers missed the

55th because of Elizabeth's 50-year reunion. Sam Seaver and Dick Senger wished to be remembered to everyone, who could remember them.

The rest of the notes have to do with obituaries. George R. Eckel, IV, of St. Joseph, Mo., passed away from a heart attack on July 27, 1959. . . . Just a few days ago I saw in the *Boston Herald* the report of the death of Bob Folsom, X. Through Andy Fisher, who attended his funeral in Reading, Mass., I learned that Bob, who had not been in good health for several years, died of pneumonia, following a heart operation. No other information now, but I will have a fuller report before the next issue. This brings forcibly to my mind that the living graduates of Course X are now three, Doc Lewis, Dan Harrington and Andy. As a matter of statistics there are 104 members now living of the 244 who graduated with us 50 years ago, 43 per cent.—FRED W. GOLDTHWAIT, *Secretary and Treasurer*, Box 32, Center Sandwich, N.H.; GILBERT S. TOWER, *Assistant Secretary and Treasurer*, 35 North Main Street, Cohasset, Mass.

'06

Since the June notes were filed, several letters have been received, for which I give many thanks. A long one from Ceil Banash gave me more intimate details of Jim's useful and helpful life, and told of her hope to visit Boston in the near future. More recently came a request from Harold Plummer, one of that army of Course III miners who dwell in the more or less far West. He wanted the address of a Course II man who had passed on a few years ago, so with my letter I sent Harold one of the 1956 class directories in which I showed all the deaths since then, also those whose addresses had changed. Perhaps I'll prepare an up-to-date class directory for our 55th. Some of the information for it may be included on the reunion "questionnaire" which you will receive early next year. Incidentally, Harold doesn't let his limitations get him down, as he said: "Although nearly blind, I am enjoying life these days, under the guidance and assistance of Guy Ruggles." In a note from Guy he allowed he has "had no trouble keeping busy so far."

The latter part of April, while Marion and I were visiting long-time friends in New Rochelle, I had a long chat with Carleton M. Emerson, II, who has been a resident there for 25 years. He has had an interesting career, was in federal service in both world wars and retired about five years ago. Jim was in touch with all of you early in April, by means of his president's letter. We are hoping that the final class percentage participation in this year's fund will be even better than the 45 per cent on February 29. If you have slipped, even a buck before June 30 will help that percentage! Jim joined me at the 345th Alumni Council meeting and we were pleasantly surprised when Chester Hoefer appeared, guest of Marshall Dalton '15, I believe. Don Severance announced the results of the

recent balloting. The competition wasn't too tough for '06 class representative and I am duly grateful to those who voted to re-elect me for another five years. By 1965, if still around, I will have been your representative on the Council for 44 years, I think, and through the years I have attended most of the meetings and also served on various committees. I have enjoyed it and hereby record my appreciation for that privilege and opportunity.

On April 27 the electric boat division of General Dynamics launched another "atomic" sub — the *Tullibee* (SSN597), the first of the Navy's new class of nuclear hunter-killers. Marion and I had been present at the launching of the *Seawolf* and knowing that I would be particularly interested in this one, my son sent me the official folder and a clipping from the New London paper. That "particular interest" is due to the fact that Combustion Engineering built the *Tullibee's* nuclear reactor at its Windsor, Conn., plant and C.E.'s Chairman of the Board, Joe Santry, VI, was one of the speakers. In his brief talk Joe said the launching was a significant occasion for the Combustion personnel who took part in the project. I also noted that two other speakers were Tech grads—Carleton Shugg'24, XIII-A, who is president of Electric Boat and welcomed the gathering, and Rear Admiral Schuyler Pyne'30, XIII-A, who introduced Vice-Admiral Edmund B. Taylor who gave the address. Like many others, I believe the rapidly growing U.S. submarine fleet is a major deterrent in this cold war. Only one address change—Norman P. Gerhard, I, has moved from Scarsdale to Lovell Street, Lincolnville, N.Y. See you on campus June 13?—EDWARD B. ROWE, *Secretary-Treasurer*, 11 Cushing Road, Wellesley Hills, 81, Mass.

'07

On Friday evening, May 13, the class held its spring dinner at the Faculty Club in Boston. The following eight men were present: Dick Ashenden, Bill Coffin, Seymour Egan, Harry Moody, Bob Rand, Don Robbins, Gilbert Small and Phil Walker. Tom Gould and Stan Wires had signified their intention to be present but were obliged to cancel their reservations on Friday morning. Our guest for the evening was Dr. Floe, vice-president in charge of research at the Massachusetts Institute of Technology.

After an hour of fellowship around the dinner table, Dr. Floe outlined to us some of the plans for immediate expansion to meet the needs of the increasing number of graduate students, also what would be the building program over a longer period of time. Already, a lack of suitable building area is being noted so that new buildings are being thought of in terms of being 20 stories high to provide adequate space.

President Robbins and your secretary both reported on the activities of various class members: Mr. and Mrs. Sam Marx spent the winter in Montego Bay, Jamaica. I am sorry to report that Sam's

health has not improved. He must now have nursing care around the clock, as he is unable to walk because of a stroke. He sends all his friends every good wish. . . . Ralph Hudson wrote from Fort Myers Beach, Fla., where he and Mrs. Hudson spend four months each year. They intend to leave San Francisco on August 15 for a tour of the world. This will include Hawaii, Japan, Formosa, Hong Kong, Indonesia, India, Egypt, Jerusalem, Greece, and Italy. They expect to get back to New York early in December. I am sure we all wish them a very pleasant tour.

Although Hugh Pastoriza did not have a great deal of information about himself, he did tell us about his family. His eldest boy, Hugh, Jr., is working on new products for IBM World Trade Corporation. He is currently on a tour of foreign laboratories. The second boy, Ralph, is a patent attorney in Santa Monica and apparently is finding plenty to keep him busy. James, the third boy, is running his own electronics company in Boston. The fourth boy, Peter, is chief programmer for the Army Ordnance Computer Center in Radford, Va. His only daughter, Dorothy, is married to a patent attorney (Howard Bolinger) who was a classmate of Hugh, Jr., at M.I.T. Hugh also writes that he has six grandchildren. Since the death of his wife three years ago, he has been living alone at his home in Bronxville. He has not as yet retired but is still trying to apply engineering principles to finance.

The U.S. Ambassador to Costa Rica and four Public Roads officials represented the United States as observers at the Conference of Ministers of Public Works of Central America and Panama, which was held in San Jose, Costa Rica, on August 28 and 29. The conference was called to initiate a study for developing a general plan for organizing and financing an Inter-American Highway Maintenance Authority which would be responsible for the operation and the administration of the maintenance of the Inter-American Highway System in Central America and Panama. Among the important resolutions passed at the meeting was one recognizing the work of E. W. James, I, former Chief of the Inter-American Highway Regional Office. He has often been called the "Father of the Inter-American Highway." The conference voted to send him a scroll recognizing his outstanding contributions to the Pan American Highway. In case you would like to correspond with him, his address is now 7112 Beechwood Drive, Chevy Chase 15, Md.

Laurence R. Davis, III, passed away October 11, 1959. He left a son, Laurence R. Davis, Jr., lieutenant in the Air Force at Holloman, N. M., and two daughters, Kathryn D. Pulsifer, of Pasadena, and Jean D. Whipple of Port Huron, Mich., and five grandchildren. . . . A note from Hud Hastings states that he hopes to have reading glasses in about three weeks, following a cataract operation on both eyes three months ago.—PHIL WALKER, *Secretary and Treasurer*, 18 Summit Street, Whitinsville, Mass.; GARDNER S. GOULD, *Assistant Secretary*, 409 Highland Street, Newtonville 60, Mass.

'08

Our fourth and last dinner-meeting of the 1959-60 season was held at the M.I.T. Faculty Club on Wednesday, May 11, 1960, at 6:00 P.M. The following answered the roll call: Bunny Ames, Bill Booth, Nick Carter, Les Ellis, Sam Hatch, Henry Sewell and Joe Wattles. We were favored with the following guests: Mesdames Ames, Ellis, Hatch, Sewell and Wattles. Several of our regulars were out of town or fighting the spring flu or had previous commitments so were unable to join us.

As usual we gathered in the cocktail lounge which had the expected Wednesday night crowd. However, we were able to capture our usual table and enough chairs for our gang. While enjoying our favorite appetizers and the delicious cheese and crackers from the buffet, we learned of the various activities of our classmates. About 6:30 P.M. we adjourned to private dining room No. 1 for a bountiful dinner while admiring Boston's skyline which was just lighting up across the Charles. After dinner it was decided, as the hour was late, not to show any of Joe's Kodachromes.

We are sorry to report the deaths of two classmates—Joseph W. L. Hale died on March 29, 1960, and Oliver S. Jennings died on April 13, 1960. The following is from the *Newburyport News*:

"Joseph W. L. Hale, 73, one of the best known residents of the South End, died last night in the Anna Jaques hospital, where he had been a patient since the 21st.

"Mr. Hale's home was at 225 Water Street in a vicinity where he owned a considerable amount of real estate near the river. He had taken much property which had been in a rundown condition and greatly improved it, in one instance making a small waterfront park. For many years Mr. Hale was a trustee of the George W. Worcester Memorial hospital and secretary of the corporation until it merged with the Anna Jaques hospital.

"At the time of his death he was vice-president of the Institution of Savings and chairman of the trustees of the Putnam Fund. Mr. Hale also was a member of St. Mark's Masonic Lodge, King Cyrus Chapter of Royal Arch Masons, Newburyport Commandery, 3 K.T., and Aleppo Temple Shrine. Mr. Hale was unmarried. A native Newburyporter, he was the son of Charles E. and Emma L. (Woodwell) Hale. He was an honor graduate of Newburyport High School and M.I.T. in 1908, and was credited with inventions relating to the 'electric eye.' He also wrote several books on mathematics and mechanical subjects.

"He was a specialist in vocational education and helped to organize the Massachusetts State University Extension School. Previously, he was an associate professor at Pennsylvania State College, following which he was supervisor of the apprentice schools of the Pennsylvania railroad lines east of Pittsburgh. The railroad sent him to Europe to study vocational education in France and Germany. Later he worked as a training officer for the Veterans Administration after World War I. In recent years Mr. Hale devoted much time to

volunteer tutoring of students who needed assistance.

"After his retirement he devoted himself to civic and charitable affairs in Newburyport. He served on the city council and was generous in giving to the care for hospitalization of persons of limited means. The only surviving relatives are cousins, including Roland Woodwell of Amesbury."

The *Boston Herald* of May 6, 1960, had the following: "A Newburyport banker and former college professor has left all but \$1,000 of his \$450,000 estate to provide a public park and garden in Newburyport for the use of all residents."

The *Providence Journal* reported the following on Oliver S. Jennings:

Oliver S. Jennings, 77, of 270 Pine Street, Fall River, a design engineer for the Westinghouse Electric and Manufacturing Company and inventor of the Deion circuit breaker, died unexpectedly Wednesday in a Fall River hospital.

"Born in Fall River, he was a son of the late Andrew J. and Marion (Saunders) Jennings. He was graduated from Durfee High School, Fall River, in 1901, Brown University with a B.A. degree in 1905, and from the Massachusetts Institute of Technology with a B.S. degree in 1908. Mr. Jennings taught electrical engineering in the laboratories at M.I.T. upon graduation, and in 1910 joined Westinghouse in the electrical engineering department as a design engineer.

"Holder of approximately 60 patents for electrical equipment, in 1932, he was named by executives of Westinghouse as the 'man who developed and perfected the most outstanding achievement of that corporation during the year.' Prior to his retirement in 1949, Mr. Jennings had been with the electric company 39 years. During World War II he had been a licensed pilot, and served with the U.S. Power Squadron, a unit which augmented the Coast Guard.

"He had been a member of the American Institute of Electrical Engineers of New York City, the Quequechan Club of Fall River, the Taunton Yacht Club, and the Cedar Cove Club. He is survived by a sister, Mrs. Dwight S. Waring of Fall River, and three nephews."

Here's hoping you will have a wonderful summer. Our first dinner-meeting of the 1960-61 season will be held at the M.I.T. Faculty Club, Cambridge, Mass., on Wednesday, November 9, 1960, at 6 P.M. — H. LESTON CARTER, *Secretary*, 14 Roslyn Road, Waban 68, Mass.; LESLIE B. ELLIS, *Assistant Secretary and Treasurer*, 230 Melrose Street, Melrose 76, Mass.

'09

Francis Loud, VI, one of our two assistant secretaries and the efficient chairman of the 50th anniversary committee, retired from the consulting engineering firm of Jackson and Moreland early in January. After graduation from the Institute, his specialty being electric railways, he joined the Public Service Railway Company of New Jersey. In 1918 he left this company and joined the Navy where he served for one year. After resigning from the Navy

he joined the firm of Jackson and Moreland which was the reorganization of the former firm of D. C. and William B. Jackson. For a number of years Jackson and Moreland has been located in the Park Square Building in Boston. Francis has specialized in appraisals, evaluations, records, inventories and special studies, some of which took him to Puerto Rico and to Canada, including Nova Scotia.

However, the project in which he was most interested was the electrification of the commuter service of the Delaware and Lackawanna Railroad. The 3,000-volt, d-c trolley voltage was obtained from the high-voltage a-c at the substations through mercury-arc rectifiers. This was the first time in this country that d-c power for railroad electrification was obtained entirely from mercury-arc rectifiers and also the first time that 3,000 volts d-c were used as the power supply for multiple-unit car operation. After such a full and productive career, we all wish Francis a most enjoyable retirement at his home in Weymouth.

Francis met Art Shaw at a recent Alumni Council meeting and reported that Art and Betty Shaw had returned from their usual sojourn in Florida. They spent 13 weeks very pleasantly at Longboat Key, near Sarasota.

We have learned that our vice-president, Tom Desmond, I, is the author of an article, "The Challenge of the Later Years," appearing in the April, 1960, issue of *Today's Health*, the magazine of the American Medical Association.

Along the middle of April, Ben Pepper, I, President of DeWitt and Flanders, Insurance, and Barbara embarked on the liner *Excalibur* for a Mediterranean cruise. The cruise included Gibraltar, Spain, France, Italy, Egypt and Lebanon, with a visit to Greece on the return trip. They plan to spend the summer at their summer home which is situated on a hill at Crow Point, Hingham, Mass., overlooking Boston and Hingham Harbors. John, II, and Margaret Davis also have a summer home just two doors from the Peppers.

This is the last number of *The Review* until November. When it is received many of us will have met at the luncheon and dinner on Alumni Day, the news of which will appear in the November Review. The class officers wish everyone a most pleasant holiday and summer. — CHESTER L. DAWES, *Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass.; *Assistant Secretaries*: GEORGE E. WALLIS, Wenham, Mass.; FRANCIS M. LOUD, 351 Commercial Street, Weymouth 88, Mass.

'10

On March 7, Charles A. Dunkel died at his home in Roslindale, Mass. The following is from the *Parkway Transcript*: "Charles A. Dunkel, 71, of 14 Conasset Street, a life-long resident of the district and a former owner with members of his family of a bakery and ice cream parlor in Roslindale Square, died Monday night. He was a member of the Class of 1910 at M.I.T. and would have observed his 50th class reunion this June. During World War I, he served in the

Army. He never married and is survived by two brothers, George F. and Walter P., who lived with him."

I have received a letter from Clark Arkell, who has been seriously considering attending a class reunion for the first time, but stated that due to ill health and an operation on his eyes he will be unable to make it. . . . I also have received a letter from Joe Northrop which follows: "Greatly appreciated your letter of a few months ago, and would love to get back there for our 50th reunion and especially to see you, Johnnie Gray, Phil Burnham, Johnnie Barnard (is he still alive?), and all the other members of the old Course IV bunch!

"However, I'm scheduled to have a cataract operation the last of next week, and the doctor tells me it will be a month or six weeks before I will be able to get around again. I've been going around with only one good eye for the past six months, and am most anxious, as you can well believe, to have normal vision restored in the other one. If I don't make it up there, my thoughts will be with you and the rest of the 1910 fellows, and I know you will have a grand and glorious celebration. Anyway, remember me to the fellows that do get up there, and tell them how much I envy them."

Ralph Horne received a letter from Lawrence G. Rice which he sent to me. He also cannot attend the reunion due to health. He writes as follows: "Have had several letters from M.I.T. and of course the one you wrote earlier. I notice you have signed up to go to the 50th reunion and if anyone inquires about me, please tell them that my health has not been so good over the last 18 months. However, I expect in another month to be on the job but not too active. Give the rest of the gang my very best regards, and had circumstances been favorable you would probably have seen me there. Anyway you can think of me with my new six-inch dacron artery hobbling around." — HERBERT S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston, Mass.

'11

Arrangements have been made for our 50th reunion at Snow Inn in June, 1961. Classmates contacted so far are very pleased that our "golden wedding" anniversary can be celebrated there, where we have had several previous happy reunions. All classmates will be contacted later this year to determine as closely as possible how many will be present. We were offered the use of Burton House, a student dormitory on the M.I.T. campus, but after careful inspection it was decided that the facilities and furnishings are inadequate and unsuitable for people of our age, especially women.

On Sunday, June 12, at the morning service in St. Andrew's Episcopal Church, Buckminster Square, Framingham, Mass., the Chancel Window was unveiled and dedicated. As stated in the April Review, this window is a memorial to our Orville B. Denison, and was made possible by donations from his family, his classmates, other graduates of M.I.T. who knew him,

and his admirers in the community and church. This memorial is particularly appropriate because Dennie's mother was one of the original active members of St. Andrew's parish, dating back to its inception in the middle 1890's. Dennie was connected with the parish as a boy, and later, when he returned to Framingham as executive secretary of the Chamber of Commerce, he served both as vestryman and senior warden, resigning from the latter position when his health required him to retire in July, 1958. While serving as senior warden the new church building was constructed, and he and his wife, Sallie, gave the Credence Table in the sanctuary in loving memory of his mother. At that time he remarked that someday he would love to be able to give a memorial window. The window is now a reality, in memory of this fine Christian gentleman.

The May 16 letter mailed to you regarding our 50-year reunion gift and the Second Century Fund was prepared at the Alumni Office at M.I.T., and signed by your secretary at their request. It very clearly states that all our contributions can be assigned if desired to the scholarship fund in memory of Dennie, and that however they are used they are still credited to our 50-year reunion gift.

Jack Herlihy, II, Carl Richmond, I, and O. W. Stewart, I, represented 1911 at the April meeting of the Alumni Council at the M.I.T. Faculty Club. . . . A letter in May from Allston Cushing, I, Kansas City, Mo., said: "I am always interested in the class news in *The Review*, and look forward to it each month. I do not go east very often, but sometime I may make a trip when I can attend a class reunion." We hope he can come to our 50th next year. Notes relative to his activities and family are in the March Review.

Harry C. Hess, IV, died April 6 at the Methodist Episcopal Hospital, Philadelphia. The following quotations are from a letter to *The Review* office from one of Harry's friends in Philadelphia: "Mr. Hess held M.I.T. in high esteem. Born at Baltimore, Md.; preparatory training at Maryland Institute and Baltimore Polytechnic Institute; after graduating from M.I.T. in 1911 he came to Philadelphia and in 1919 started his own business as structural engineer, with offices at 10 South 18th Street, Philadelphia, and early in 1960 moved his office to 1737 Chestnut Street, Philadelphia. Mr. Hess was well known in the Philadelphia area as a successful engineer, and was active in his profession up to the time of his death. He was serving as chairman of the metropolitan area of Philadelphia for the "Special Gifts" Drive for the 50th anniversary of the Class of 1911. After a week's illness of a virus Mr. Hess died of coronary thrombosis." Our sincere sympathy to his sister and nephew, who are living in Baltimore.

The following address changes have been received: C. Phillips Kerr, II, 8014 Jansen Drive, Springfield, Va.; Ralph E. Vining, III, Baldwin Mill Road, Baldwin, Md.; George B. Forristall, II, 50 Blake Street, Newtonville 60, Mass.; and Erving M. Young, I, 19 Aspen Road, West Orange, N.J.—HENRY F. DOLLIVER, *Secretary*, 10 Bellevue Road, Belmont 78, Mass.; JOHN

A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

'12

Fritz Shepard, Jr., is still on his travels, so here is another communication from your assistant secretary. . . . I was on the West Coast again last month, but the only 1912 man I visited with was Henry A. Babcock at Los Angeles. He is still active in city planning and appraisal work. Henry is now completing an exhaustive textbook on these and allied subjects.

R. C. Stobert writes that he again attended the M.I.T. Fiesta at Mexico City in March. We were both there three years ago and got caught up a little on 1912 news. This year it was the 50th anniversary of the M.I.T. Club of Mexico City. If you have never attended one of these fiestas you should start planning now. They are held about the middle of March each year, and the Mexico City Club really rolls out the red carpet for the "gringos." (See *The Technology Review* for the exact dates.) Stobert is president of the Hardie-Tynes Manufacturing Company at Birmingham, Ala. They are manufacturers of heavy machinery and are doing a lot of work for the U. S. Navy.

Colonel Harold C. Mabbott is keeping busy in his retirement. This winter he has been in charge of five two-hour laboratory periods at the Pennsylvania Military College. . . . Mabbott's neighbor at Swarthmore, Raymond E. Wilson, spent the winter in Florida and luckily timed his trip to dodge all the bad weather in Pennsylvania.

We read in the newspapers about the world troubles, but seldom have an opportunity to get first-hand, on-the-scene pictures of the real situation. The following letter from Hamilton Merrill is timely and informative: "Since my retirement in '56, I've been pretty occupied with various civic activities, such as the University of Bridgeport, the Museum of Art, Science and Industry, the Fairfield Board of Finance, and a few others, but we try to take a trip each winter and see some of the world we live in. It gives so much greater an understanding of the problems we read about in the newspapers. This winter we returned from two months in southeast Asia and India. It was a tremendous experience that we wouldn't have missed for anything. Some of our impressions follow.

"Hong Kong has a terrific problem with refugees from Red China and just cannot keep up with the need for water, housing and schools, though they are finishing a new school every two weeks. It's a fascinating place with the fishing folk living for generations in sampans and rarely mixing with the land folk. It probably has the most enterprising merchants and tailors in the world. . . . Bali is beautiful with wonderful scenery and quaint villages, and its Bali-Hindu religion mixed up with animism and black magic.

"Malaya is a very clean and energetic country, contrasting scenery of jungles and mountains, fine water and a very progressive government. All the shops are run by Chinese. . . . Bangkok is a place of fairy-

like temples, broad, clean streets, open sewers, and countless *klongs* or canals which serve for transportation. The people are polite and hard-working, but the country has limited resources except for silk, rice and fish. . . . The ruins of Anchor Wat and other temples in Cambodia are all that has ever been written about them; so vast that they strain the imagination. . . . Ceylon is a beautiful island of fruit, mountains, elephants, and ancient temples.

"India is a country of infinite variety from hot jungles to the cool hill stations in the Himalayas. The government is trying hard to overcome the caste system and build industry and improve living conditions. But the strong hold of their religious beliefs and ingrained customs create a passive resistance that will take years to overcome. The poor are very poor and the rich, very rich. Ideas of sanitation are hard to instill. Labor is so cheap it does not pay to save it, so we saw very primitive methods such as pumping water or harvesting crops, and this was true throughout Asia.

"The nicest thing about coming home was to go to the tap and drink all we wanted of good Bridgeport hydraulic water. I will certainly be back for our 50th and hope to get up in June."

We are already assured of a pretty fair turnout of 1912 men on Alumni Day, June 13. Caroline and I will be there. We hope Erwin H. Schell will have returned from his globe-circling trip and share some of his experiences with us. If we miss you at Cambridge on Alumni Day, we will definitely count on seeing you all at our 50th reunion in June, 1962.

(The remainder was sent in by the secretary.)

Word has just reached me of the death of Harold S. Johnson who passed away September, 1957, in California. He had been with the Superior Oil Company of Los Angeles as an electronic engineer. . . . Edward H. Mangan passed away February 3, 1960, in New Rochelle, N.Y. Ed had retired several years ago as executive vice-president of the Electro Metallurgical Company in New York City, and not wanting to be idle, associated with the Walsh Construction Company of New York and later with the Fruchtbach Construction Company in Buffalo.

Jim Cook was good enough to report a very pleasant visit with Harry Dexter who dropped in on him in Marblehead, Mass., recently. Harry's wife died about seven years ago and he sold his large home in Poughkeepsie, moving to smaller quarters. His daughter Carol is assistant director of research for the Girl Scouts in New York City. His son is a pilot on one of the large air lines.

Harry is currently district governor of Rotary International. He intends to be at this year's convention in Tokyo and as he speaks Japanese and a bit of Chinese, will feel quite at home. He travels a good deal and has cut his baggage down to about 20 pounds, a considerable bit of which is photographic equipment. He claims one need not fear the food in any country if he drinks only hot tea freshly made, and eats only hot food right from the fire before the flies have a chance to light. For many years Harry was vice-president in

charge of sales at the Central Hudson Gas and Electric Company. Jim tells me that he and his wife Hilda are planning to sail on the *Kungholm* with Mr. and Mrs. Larry Cummings, on a Scandinavian cruise this July. They expect to be gone about six weeks.

Larry Cummings and his wife Laura are just back from Central America where they have been this winter. I hope to have further details of their trip. . . . A good letter from Jay Cather tells of a six weeks' trip which he and his wife have just enjoyed in Trinidad and Barbados. While there he did a bit of "birding." They were able to see quite a flock of motmots, or king of the woods as they are called. They also identified 24 other varieties of native birds. Jay reports sales of his automatic bird feeder are going very well indeed. He is now in the 300 series and has them installed in 20 states and in Sweden.

I have just returned from a three months' cruise on the *Coronia* that took us around the world, visiting many interesting ports. . . . Cy Springall, who made an around-the-world trip about two years ago, is, I understand, planning to start out again. It certainly makes one glad to be back in the U.S.A. and I shall be perfectly content to stay here for some time.

Obey that impulse—drop us a line today.—FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston, Mass.; JONATHAN A. NOYES, *Assistant Secretary*, 3326 Shorecrest Drive, Dallas 35, Texas.

'14

It is interesting to note that many items in our class news deal with retirements or the happy combination of retirement and pleasant winter vacations. Leigh Hall now spends a very happy winter vacation in Florida, then returns in the summer to New Hampshire for an equally fine time. . . . Chet Ober spent his winter in Hawaii. He has maintained his longer residence in Darien, Conn., where he has three children and several grandchildren to keep him quite busy.

Thorn Dickinson wanders far and near during his retirement. His present location is at Philbrook Farm Inn at Shelbourne, N.H. While this may be his current address, he travels many many miles among the mountains of New England. I expect that he has traveled on foot farther than any of his classmates. . . . Long Lau has left Shanghai after a long stay there, and is now at Kowloon. Your secretary wishes he had known of this earlier because he spent several days right on the very street given by Lau.

Last month your secretary told of the death of Ralph Brown but had no other data than his previous residence. Since then it has been learned that he came from Marblehead and prepared for the Institute at Chauncey Hall in Boston. He was an engineer and did submarine construction work at Bridgeport, Conn. He had retired to South Chatham, Mass. Brown died on April 2 and is survived by his wife, Mrs. Ina (Cahoon) Brown and two daughters.

Word also was received of the death of Morris Goldenberg on October 28,

1959. He prepared for M.I.T. at the Mechanics Arts High School and graduated from the Institute in mechanical engineering. He did aircraft designing with special machinery for quality production of the Browning Machine Guns. Goldenberg formerly lived at 84 Breckwood Circle, Springfield, Mass. He is survived by his wife and two daughters.

On April 16 the Reverend F. Hastings Smyth died at Gloucester, Mass. Reverend Smyth attended Hamilton College then transferred to M.I.T., where he received his doctorate in chemistry and also taught chemistry. He then served as a captain in the chemical warfare. Later he was for five years in chemistry and geophysical research as a staff member of the Carnegie Institution of Washington, D.C. He resided in England for more than 10 years, preparing at the same time for the holy orders and was ordained a priest. He founded the Society of the Catholic Commonwealth. In later years he returned to the United States and resided at the Oratory in East Gloucester where he died.—CHARLES P. FISKE, *President*, Cold Spring Farm, Bath, Maine; HAROLD B. RICHMOND, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.; HERMAN A. AFFEL, *Assistant Secretary and Class Agent*, RFD 2 Oakland, Maine.

'15

Our exciting class dinner on May 6 at the M.I.T. Faculty Club emphatically justifies our slogan "What a Class!" Twenty-six classmates and their guests gathered for an hour of cocktails, then enjoyed one of Bill Morrison's best dinners. These guests are regular attendants and really have been adopted by the class—Lou Clements (with Max), David Hamburg, Peter Murphy (son of Harry) and Bill Sheils. Present were: Larry Bailey, Wayne Bradley, Bill Brackett, Whit Brown, Lou Clements, Marshall Dalton, Sam Eisenberg, David Hamburg, Seward Highley, Wink Howlett, Clive Lacy, Larry Landers, Azel Mack, Harry Murphy, Peter Murphy, Archie Morrison, Wally Pike, The Pirate, Ed Sullivan, Bill Sheils, Jac Sindler'17, Easty Weaver, Fred Waters, Pop Wood, Max Woythaler and Louie Young—a swell crowd.

Larry Bailey returned to the fold after some serious surgery and we were all glad to see him in such good shape again. "Long time, no see" men were welcomed back—Seward Highley and Wayne Bradley, who came from Jewett City, Conn., to win long-distance honors. Pirate George opened the dinner with a rousing "we are happy" cheer, and gave the boys a few words on the reunion. Plans for the reunion were the big business of the evening and Wink Howlett, who has done a monumental job in setting up all the details, described, at length, all the plans. Max urged the boys to go to the reunion and spoke briefly on the Alumni Fund. Jack Dalton described financial activities at M.I.T. and praised 1915 for its continued generous support of the Alumni Fund.

Wayne Bradley owns and operates an old-world New England resort inn at

Pike, N.H., and has invited us up for our 50th reunion—a generous offer and we'll see! Due to illness Al Sampson was unable to attend to tell us in his inimitable way, about the class cocktail party on Alumni Day. But he and Barbara Thomas have this all set up and it looks like the outstanding event in our reunion weekend as it brings and keeps us all together. There were several interesting messages of regret—Speed Swift wired from New London, N.H.; Hank Marion wrote from Denver; Bur Swain has no time to do anything because of his retirement. Herb Anderson is steadily improving and will be with us in June. He wrote: "The many messages of good cheer from classmates has brightened a tough outlook." Good luck and good cheer to Herb. Henry Daley has kept in close touch with him.

Charlie Norton was unable to get to the dinner from Vineyard Haven but warned the boys that he is "not painting the tails of sheep or anything else." . . . Ernie Loveland is in Spain on a three-month consulting job on his seaweed processing. . . . Thayer MacBride is home convalescing steadily from his recent serious surgery. All the best to him for a complete recovery quickly. . . . The annual reports of the Boston Manufacturers Mutual Insurance Company and the Mutual Boiler and Machinery Insurance Company of Waltham, Mass., show the results of Jack Dalton's able and energetic leadership as Chairman of the Board of both these successful companies. . . . On a pretty card from Naples, Italy, Jerry Coldwell wrote: "I am in Europe inspecting NATO installations in and around Paris, London, Wiesbaden, Berlin, Heidelberg, Nürnberg, Naples and Madrid. I am going out with the Sixth U.S. Fleet for their sea exercises." Sounds like a colorful and exciting experience for Jerry, even though he is retired.

It is a sad shock to have to report the passing of Henning Berg, who died suddenly at home in San Francisco on April 3. Avice wrote that he had been making enthusiastic plans for our reunion. Everyone remembers how gay he was at our 40th. Earl Brown wrote they were planning to come together. Hen was a staunch and generous supporter of our class and M.I.T. I enjoyed pleasant and regular correspondence with him. It's tough to lose an outstanding classmate like Hen. We'll all miss him but we'll never forget him. . . . All the best to you all and your families for a happy, healthy and enjoyable summer.—AZEL W. MACK, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.

'16

And now that the 44th reunion is over, we are all looking forward to the 45th—an event that countless correspondents say will surely include them. The story of the 44th will be given in the first fall issue in November.

Emory Kemp writes of the shock he received when he heard of Harold Russell's death. He knew nothing about it until he called, as was his wont, to leave his car in Harold's yard when he went on a trip to Boston in April. Only

in January he had persuaded Harold to come to the 44th in June, despite the fact that the ladies were to be there, a feature that was not in high favor with Harold. As Emory writes: "One night after supper Harold told his wife he was very tired and thought he would go to bed early. About 8:30 a phone call came for him. His wife called him but there was no answer. Going upstairs she found he had passed away in his sleep. The class has certainly lost a wonderful fellow — always kind, true blue, and loyal to his class and his classmates. He and I have been intimate for nearly 50 years and I have not fully recovered from the shock yet."

Russ Lowe reports from Florida that when he retired last year he did so all over and made a thorough job of it. Fishing is his principal interest and living within a stone's throw of the Indian River, with pier and riparian rights, he is thoroughly enjoying his hobby. So far the salt-water angle has left him no time for Florida's rather famous fresh-water variety but he expects eventually to sample it. He says: "Of course we have made must-visits to Florida's show places — Silver Springs, Cypress Gardens, the Bock Singing Tower and Sarasota, plus a trip to the Bahamas and found them all well worthwhile." In July they will start a three-month vacation in Maine, Canada and points en route visiting old friends and fly fishing for trout and salmon. For people pushing 70, he feels they are doing very well healthwise. "No more arthritis, thanks to Florida's blazing sun. It proves that old saying of Kipling that 'Only dogs and Englishmen go out in the mid-day sun.' " Russ sends best regards to all!

We have received for our class records a tastefully prepared memorial booklet entitled "Hsien Wu, 1893-1959, In Loving Memory," compiled and edited by Hsien Wu's widow, Daisy Yen Wu. His death and illustrious career were reported briefly in our column in the December 1959 issue. From the booklet we learn more of his amazingly significant contributions in the field of biochemistry — with emphasis on human biology, from infancy to old age, providing "a better understanding of the factors which affect the development of man." He was author of two books, a total of 159 papers and articles (think of it, 159!), plus 13 articles in Chinese which appeared between 1932 and 1937. From his portrait in the booklet he will be well remembered and favorably so, even by many of us who last saw him in our undergraduate days on Boylston Street.

Clint Carpenter wrote in April that the reunion was doubtful for him this year. He suffered a coronary attack in November which put him out of commission for about four and a half months but when he wrote he was back on a schedule of about three hours a day so far as business was concerned. He's confident of a complete recovery and expects to be around a long time. He had planned a trip to Hawaii (he might well have seen Len Stone there at that time) but this had to be canceled. He notes: "My son Jerry (M.I.T. '54) is with me now in the

construction business. He was married in January of this year to a Virginia Beach girl and at the moment is serving his annual two-week tour of duty in the Engineer Corps and is in Florida." O.K., Clint, just do what the doctor says and you can come to the 45th and all the reunions that follow.

Blythe Stason indicated his inability to be at the 44th. He says: "It falls on the dates of our own commencement exercises at the University of Michigan and naturally my duties are here." This is Blythe's last year as dean of the law school so he expects to be at the 45th next year. . . . And Maury Holland writes from Honolulu for reservations for the 45th in 1961. Says: "My wife will be with me, Lord willing." He plans to come back to Rhode Island this month (July) — Maurice, Jr., is to enter Harvard Graduate School. . . . Vert Young also expects to be at the 45th. He had planned to attend this year but found that his 45th at Trinity occurs on the same dates. He went on the Board of Trustees of Trinity this year and has to be in Hartford for a Board meeting. But he expected to be at the class cocktail party in Cambridge on June 13.

Jim Evans (who's still "Jimmy" to you-know-who) continues high in the polls of Paterson's East-side High School (N.J.), where he is a favorite "regular substitute" in the senior math and sciences courses. At his urging, your secretary lectured on "Probability and Statistics" for the math club of the high school in the middle of May, and was privileged to see first hand some of the eagerness and discovery-mindedness Jim has been promoting in his work there. Walking through the corridors, we noted not merely light nods from the faculty and top administration, but genuine delight as he came along in his good-looking conservative sport coat layout (you know — the way Jim can carry them). And among the students, the "Hi, Mr. Evans!" was a testimony to the high regard he is held in his new profession, that of stimulating and shaping young minds for college work in math and science. Speaking further of Jim, he tells of seeing Cy and Mrs. Guething off at Idlewild and of Cy's writing back from Rome saying all had gone well with perfect weather. And of all things, Cy tells of meeting someone on the very first evening in Rome right in the same elevator in his own hotel. None other than Walt and Mrs. Binger who were on their way to the Far East. Cy says: "So we joined up for drinks. They went to the opera later and we to dinner and bed. They return late in June." Cy says the treatment he and his wife are getting is the tops — they have ideal transportation and a boy who knows his way around. We surely hope to see them at the reunion.

As mentioned in the June column, Irv McDaniel's letter from Spain was the letter of the month. He had much more to tell than we could possibly write here, and some of his descriptions were — how shall we put it — best suited for reading at a reunion. Of a spot in Copenhagen, he said in part: "It was a superb show but it was our first experience with continental humor. It was very broad, vulgar, and funny enough (maybe?) to excuse it. Anyway, when in Denmark, laugh when the

Danes laugh!" His description of famous night clubs in Aalborg, Hamburg, West Berlin, Munich, Vienna, etc. — we'll have to pass them up here. But speaking of other things, Irv says: "I have an Alpine hat loaded with 'medals' from the Alps I have climbed. If there is a telecab, ski-lift, cable car or other means, we climbed the mountain. In a few cases, we had to walk a few feet at the end to reach the top. You probably know Europe much better than we shall ever know it, but the first time is an experience and we are enjoying every minute of it. The opera in Vienna was one of our highlights. In such productions, the staging and scenery were even equal to Clarke Robinson's '17 Tech Show sets. The nights were as exciting as the days. The Swiss villages with their Kurballs, their songs and dances. The music of Germany and Austria. The McDaniel System at roulette worked fine all through Europe until I hit the Big League (Monte Carlo) — there my coach (Kay) sent me back to the minors."

We didn't get it direct but rather in the form of a news release on February 19 — the appointment of George Ousler, retiring V.P., Sales Division of Duquesne Light Company, Pittsburgh, as assistant to the president, Ernest N. Calhoun, of Edwin L. Wiegand Company, "world's largest exclusive manufacturer of electrical heating equipment." George's principal assignment will be the co-ordination of Wiegand Company's electrical heating program with those of electrical utilities.

Harold Gray starts off with: "When I pick up The Review and read the many interesting items in the class notes I get a twinge of conscience that I have been so lax in responding to your various requests over the last couple of years. What little I have to offer in the line of news of interest to other classmates is rather inconsequential." But that "just ain't so" — read on and see. Harold is still making precision investment castings in the Syracuse area (letterhead — Gray-Syracuse, Inc., Manlius, N.Y.; Investment Castings of Ferrous and Non-Ferrous Alloys) and coaching along his son, Dick, who is gradually taking over the responsibilities. Two years ago, Harold and his wife "broke loose" and went over to Portugal and Spain on a combined business and pleasure trip. He writes: "We went up to Holland, Belgium (saw the Fair) and then down to Paris where I attended a European Investment Casters meeting and gave a short talk. We then went down to Italy and spent a little time in the Italian lake region and I went back and visited the Mazzuchelli plant where I used to work in 1927-28. We had a very pleasant visit and I found some of my Italian associates of former days still there at the plant. Most of my French came back to me fairly easily but I had quite a bit of difficulty trying to express myself in Italian after 30 years away from there." A year ago he decided it was time he saw the western part of the U.S. so they drove across to Denver and Los Angeles and up the coast to Victoria, coming back through Lake Louise, Banff, Glacier National Park and Yellowstone. This was a delightful trip that he recommends to anyone. Three weeks after he got back he got hit with a coronary attack that ended his activities

for several months. Fortunately, he has had an excellent recovery, and when he wrote in April, was back at work although on a short daily schedule. He is told he can play golf again this summer and that he can get back to wading some of his favorite trout streams once more.

Len Stone, a New York luncheon regular, retired from A.T.&T. on February 29, 1960, so these anniversaries will come only every four years. There's a right smart-looking picture of him in the March 1960 issue of A.T.&T.'s 195 *Broadway Bulletin*. In his early years in the development and research department, he was for several years office manager and then in technical staff work on electrical interference. It was no doubt his flair for super-organized neatness in everything he touched, that, in 1927, drew him into the statistical division to work on methods for the newly formed statistical units of the Bell System. As the *Bulletin* says: "Early exploratory work on employee opinion was added to his work in the '40's. The personnel relations department established the System Employee Attitude Surveys about 1950 and a year later, Leonard was transferred to help in its development. Among the memorable experiences of his years at 195, he mentioned the first demonstration of News Telephoto Service in 1928, organizing the records during the F.C.C. and W.E. investigations, Army and Navy assignments during World War II and the first use of electronic computers to summarize system data for the 1955 Attitude Survey." On retirement Len and his wife flew to Hawaii, were there for three weeks, then had three weeks in California (one week with his sister in St. Helena—Napa Valley wine country), and five days in the Santa Fe area in New Mexico. (More details in a later issue.) But he apparently never did warm up to the southwest country—"just too bleak and barren." And his home looked awfully good to him when he got back. He and his wife live in Jackson Heights, L.I., and have a married son, a married daughter, and seven grandchildren, all living within easy automobile range, but, we believe, not near enough for regular baby sitting. The A.T.&T. *Bulletin* says he expects to devote "more time to such hobbies as wood and metal working, boating, golf, bridge, and other non-profit diversions." This summer they'll be at home on their Little Beaver Island, really right in Lake Winnepesaukee, N.H.

About mid-April Harold Mills and his wife started off on a two-or-more months' trip to the West Coast with many stopovers in the heart of the Rockies. They've had several such trips in the past few years since retirement and each time a new area to discover is located as the focus of the next trip. This time southern Utah is to have their closest attention and longest look. The first report came postmarked "Monticello, Utah," with the note that they'd had two all-day jeep rides in Monument Valley territory. They camped there and had 18-inch icicles on their water bag. A card shows Navajo women weaving and carding wool under their summer shelter in Monument Valley area of Red Rock—the famous "mitten" rock in the background. Harold says that the woman in the foreground is the mother of their Navajo Indian driver who had

made many interesting contacts for them. Another card early in May shows Twin Rocks, situated near the entrance to Capital Reef Monument six miles west of Fruita along highway 24 in Utah. Harold's message: "We have been camping the last three nights in country like this in southern Utah. This is isolated country, mostly graded gravel roads. Fruita, where we camped, had about eight houses besides two motels for people too tired to go through. No post office or stores—one gas pump. All, however, very interesting."

Flipp Fleming continues to be a traveler. Last July and August, he and his wife took an extended trip on the *Coronia*, a 35,000 ton deluxe liner with 650 passengers and 700 crew. They lived on the boat 35 days and took side trips in Ireland, Norway, Denmark, Finland, Sweden, Germany, England and Scotland. Leaving New York on July 2 they kept going until they docked in Southampton, August 6. There they rented a car, and spent two weeks driving through England and Scotland. He says: "Along the way I saw a number of my Goodyear friends which made it a very enjoyable trip. In England Mrs. Fleming saw a cousin and his family whom she hadn't seen in 37 years. She lived in his house for six months and they were more like brother and sister than cousins. We had wonderful weather. The natives said they couldn't remember when they had had such nice weather. Rained only five times—two came at night, and only three spoiled side trips." After touring England and Scotland, they returned on the *Queen Elizabeth*. In March of this year they spent three months in the South. Although it was rainy and cold with little sunshine, they had a good trip seeing friends along the way. He says: "Saw Ernie Gagnon in Hurtsboro, Ala., and had a nice visit with him." As he wrote, Flipp said he was having a few repairs made on the house—says he doesn't do any real work himself, just supervises and manicures. He regretted he couldn't make the reunion. A number of years ago as an aftermath of the flu he ended up with asthma and this has changed his entire way of life. Must do things slowly and avoid the excitement of groups but he does get pleasure from "puttering around" in his yard and taking trips. As an old reliable who always answers requests for column news, he has our very best wishes!

We are very sorry to report something that did not come to our attention until April—namely, that Arthur Tabbutt of Silver Spring, Md., passed away on August 17, 1959. Mrs. Tabbutt writes that she and Arthur were on their way to St. Petersburg, Fla., to make a permanent home, but got only as far as Richmond, Va.

A recent Standard Oil of New Jersey stockholders' magazine *The Lamp*, gave some beautiful pictures of Bangkok—they looked just like the descriptions sent in by Paul Page Austin when he was over there last year. Word from him says the pictures were typical of Bangkok and that they brought back memories of a very pleasant 11 months spent there. He says: "After Japan, I think Thailand is one of the nicest countries in Asia for an American to live in." Paul is back in the San Francisco office of the Rogers Engineering Company, and very busy on a new

project. He says he'll tell us all about it when whatever-it-is is a proven success.

In conclusion, your officers wish to extend their thanks to the many who have responded so generously to requests for news during the past year. Best wishes for a good summer, and don't forget to write just a little but as often as possible to—HAROLD F. DODGE, *Secretary*, 96 Briarcliff Road, Mountain Lakes, N.J.; or to RALPH A. FLETCHER, *President*, Box 71, West Chelmsford, Mass.

'17

From reports of the activities of members of the class it is doubtful if many will be at home to read these notes. Europe is claiming a goodly number, and this country's vacation spots will lure many.

The "65 Club" has admitted another classmate to membership. Ed Tuttle writes: "The Navy made me a captain a long time ago, and retired me in 1955 with pay. In November, 1957, a call from the Pentagon provided a cruise on the DL2 to Key West and back. It was delightful. The way the destroyer leader took a storm off the Virginia Capes, throwing spray over the masthead—without putting her nose under—was astonishing. It was so different from a cruise on the old *Illinois*, when I was assistant chief engineer, in the same area. On that trip, we took green water 12 feet high over the forecastle deck. The shock shook that great big hulk enough to throw you off your feet.

"Mary, my oldest daughter, is married and has three sons. They live near Denver, Colo. Bette, my second daughter, is an artist, and unmarried. Albert H., my son, was in the Navy. He is married and has a son and daughter. Elma, my youngest, is married and is bringing up several boys while her husband is working for his doctorate at Ohio State while teaching and doing instrumentation for Wright Field.

"I have kept the old home in Brookline. We live there in the winter. When the snow in New Hampshire is gone, we move up to Dublin, where we have a farmer's cottage and a barn, halfway up Parker Hill, facing Great Monadnock Mountain with five acres of grazing land in front, and up about 1400 feet above sea level. The panorama is wonderful, changing each hour of the day. It is a great boost to get up there away from the tensions, noise, and dirt of the city, to the peace and beauty of the countryside and the friendship of the people who live there. I never before had the time to do shop work, and that is one reason why I enjoy working in the shop that I have set up in the barn. My shop, our social affairs, the nap after lunch, and a substantial amount of reading matter keep me well occupied."

The Medford, Mass., *Mercury* ran the following headline on April 21: "North-eastern Honors Five For Contribution To Co-operative Plan." Among the five honored was Frederick A. Stearns, who was presented a citation by Asa S. Knowles, University President, which read: "For 40

years' distinguished teaching in mechanical engineering." The article stated that "Professor Stearns, who joined the faculty in 1920, holds both his bachelor's and master's degrees from the Massachusetts Institute of Technology."

We report the death of Judson C. Richardson, of Red Bank, N.J., on December 23, 1959.

Bill Neuberg has just joined the "65 Club." He writes: "I'm giving all my time to 'Endew,' a little bag of chemicals which is hung in a clothes closet to prevent mildew and musty odors. Endew lasts three to four months and gives protection against moths. This is my first attempt at a consumer product." (Please note that no payola is involved in this announcement.) . . . Travel notes. The Dix Proctors have just returned from a fine trip to Australia, New Zealand and other South Sea islands. The Win McNeills will be missing Alumni Day for the first time in many years as they will be on a European tour. A card from Zurich tells of the Ray Stevens getting around Europe and England. The Stanley Lanes are on a jet trip around the globe.

A news article from Binghamton, N.Y., reads: "The City National Bank of Binghamton, N.Y., sent flowers recently to the management of the Binghamton Savings Bank, congratulating the latter institution on the opening of its new facilities. But, unfortunately, the card with the flowers read, 'Deepest sympathy.' Later, the florist who made the mistake called the bank to apologize. What really worried him, he said, was the other bouquet, intended for a funeral, carried the message intended for the bank: 'Congratulations on your new location.'" —W. I. McNEILL, Secretary, 107 Wood Pond Road, West Hartford 7, Conn.; STANLEY C. DUNNING, Assistant Secretary, 21 Washington Avenue, Cambridge 40, Mass.

'18

"Build Thee more stately mansions, Oh my soul," sang Dr. Oliver Wendell Holmes in the last stanza of his "Chambered Nautilus," which I was required to memorize over a half century ago. If you will excuse my taking a much too unrestrained interpretation of the good physician's poetry, Bill Wills has been building stately mansions in the old New England fashion for many years—so many years in fact that the February issue of *House and Garden* has a 14-page article about it with copious illustrations of exteriors, interiors, floor plans and landscaping. Bill's trademark is a big chimney, for which he should have been given an honorary life membership in the bricklayers' union. One of the assumptions, conditioned by our culture, is that something a little old is of small account; something quite old demands veneration. This is largely the explanation of how Bill built his new house out of old timbers and clapboards in the places that show. It is a small house, but a stately mansion in the sense that a little old grandmother of tiny proportions can be a very stately dame.

John Markham has built himself a stately mansion of entirely different struc-

tural design. In fact, it is the Navy's supersonic wind tunnel operated by M.I.T., over which he has presided since it was a few pencil lines on a drawing board. My chance to view this marvel came about because of John's willingness to explain it to a young high school friend of mine who won second prize at the Dartmouth Science Fair, for his home-made wind tunnel. Before leaving the office, Professor Markham gave one of the best pin-point lectures I have ever heard on what science is. He said in effect: "We have laboratories so we can get advance information. Men even get rich through advance information, because they can thus be more certain of the next step. That is why we make models and shapes to test under simulated flight conditions. It allows us to measure forces and resistances, and to build with confidence. After that we have to verify our conclusions in practice. Sometimes the conclusions must be modified, but not as much as would be necessary without the laboratory experiments. With them we can get close to the correct shapes and strengths required for the particular thing we want to do. That is what engineering is. It saves money and time. With a lot of experiments completed, we can formulate laws and make reliable calculations without new experiments of a similar type being necessary. That is what science is."

"We are doing more experimenting now than ever before. Hence our remarkable scientific progress. Of course, with progress we get greater refinement and more complication. This requires more complicated information, which in turn demands more complicated measuring devices. The first M.I.T. wind tunnel operated with an air speed of 30 mph. The one I am going to show you will go up to speeds in the order of half to three-quarters of a mile a second. The more you know, the more you see there is to know that you want to find out. Now don't get the idea that engineering is an enormously difficult field. If it were, there wouldn't be so many people earning a living in it. So don't be too impressed by stories of the difficulty of M.I.T. You do need to be able to think objectively and quantitatively. You do need to be good at math and to have a great respect for truth. The scientist and the engineer can prove when he's right as the philosophers and politicians cannot." That's giving the young a few fresh eggs of thought!

John explained, as we toured the tunnel, the concern aeronautical engineers now have for shock waves and the heat produced by the compression of air at supersonic speeds. At Mach 3 the nose of a missile is heated to 700 degrees Fahrenheit, the air is ionized, and electrons split off. This creates problems with electronic instruments as well as with the strength of the missile's parts.

During the visit John and I talked about many long-gone events. He, Warren Scott, and I were also classmates in the Cambridge Latin School. I asked him whether he thought then he would achieve his present distinction. He denied the achievement, but that did not fool us. We talked about classmate Richard Smith, whose heart was broken in South

America, and Ed Warner, who was the first head of the Department of Aeronautics and could extract cube roots in his head. We thought he had memorized the logarithm tables. Ed was really the father of aeronautical education and never received half the credit he deserved. John told me of his trip to Denmark, Holland, Italy, Spain, and England in 1955. He was in Paris again in 1957; reason, a civilian secret. "Not much came of it," he said. His first European experience was in World War I which he entered as a shave tail and came out as a captain in love with a French girl whom he later married. John Markham is one of those able, modest, hard-working men, touched with kindness, who has built far better than he realizes. Like Ed Warner, he deserves more credit than his quiet ways have received. He retires next June.

Pete Sanger aspires to build a more stately financial mansion for our 50th reunion gift to the Institute. He would welcome your being constantly reminded that tuition for our four years cost less than for one year now. Hence, you should (if you have not already) give \$1,000 toward this fund. He recommends \$340,000 by 1968, of which there is now in hand a modest \$34,000—or one tenth if my fractions are right. (Logarithms drove me mad!)

A postcard from Switzerland says that Max and Selma Seltzer have been craning their necks at the European mansions as part of a three-week trip to Amsterdam, Athens, the Greek Islands, Venice, Zurich, and Paris. More details later, we hope. My own gazing has been more at galley proof and sizzling sentences in the hope of building something for generations to come. As these notes are being written my 15th book becomes available in the book stores. Now, everything I know has been embalmed in printers' ink. Incidentally, this volume is the fourth to be published in the last 14 months. They are, in sequence: "Successfully Finding Yourself and Your Job," "The Teaching of Human Relations," "Co-operation and Conflict in Industry," and finally "Living a Happy Life." To my amazement (and that of everybody else) the U. S. Army placed a pre-publication order for 800 copies of the happiness book. To my delight, the Harvard Business School invited me to address their doctoral candidates on how I taught human relations when at M.I.T. The students, most of whom had had experience as executives before coming to the business school, very generously said they never before learned so much in three hours time. The professor wrote a letter which was equally gratifying. There are many, many advantages to being old.

Again, there are those for whom, "Build Thee more stately mansions, Oh my soul," has changed to other climes. Harold Weber's wife, Madeline, died on April 9, to be buried three days later with a Solemn High Mass at St. Pius Church, Milton. She had taught at the Tucker School in Boston for many years. Harold has wisely gone back to Washington to keep actively busy with little idle time in which to think, and will be on an emeritus status at M.I.T. next year. I hope he is partly sustained by the real-

ization that she was spared the parting. . . . Without even a date being given, information has reached me of the death of Harold Y. Keeler of Huntington, W. Va. Yes, Dr. Holmes, as you said, "the swift seasons roll."—F. ALEXANDER MAGOUN, *Secretary*, Jaffrey Center, N.H.

'19

Kim Stuart spends his summers in Genoa, Nev., and travels a good deal in the winter. Last fall he spent a month in Japan, and says he is enjoying his retirement. He has eight thriving grandchildren. . . . Max Untersee writes from Los Angeles that he was sorry to miss the reunion last year and would like to hear from some of those who attended. His son Philip is having his fifth reunion this June at M.I.T.

Mrs. Smoley and I spent a delightful day in April with Rennie Smith and his wife Grace at their retirement home near Lottsburg, Va. The farm is on an inlet of the Potomac River. The Smiths took us for a ride in their boat to the mouth of the Potomac. The shore has many lovely secluded houses—fishing and duck hunting are good. The main course for dinner was creamed oysters, which the Smiths had dug from their own oyster bed right off the dock. Nothing seems to be too much for the Smiths on their 200-acre farm, chopping down trees, clearing brush, gardening and fishing. Their home is lovely, and it is a pleasure to see two people who apparently have solved the problem of retirement so happily.

Alfred A. Johns has been made a vice-president, in charge of student personnel services at Rochester Institute of Technology. Alfred is completing 41 years of service at Rochester. He began as a physics and math instructor, served as director of industrial arts, supervisor of industrial chemistry and registrar. He was named dean of students in 1954. President of the Vocational Guidance Association, he has been active in the American Legion, public school, civil defense and civic affairs. Alfred graduated in Course XI (sanitary engineering).

Ruth Olfene was married in March to George Edward Strickholm. Miss Olfene received her B.A. from Bates College and did graduate work at Boston University and at the Massachusetts Institute of Technology. She is the daughter of Mrs. Frederick E. Olfene, who graduated from Course V, and has been a social worker with the Department of Public Welfare, 600 Washington Street, Boston. . . . The new address for Robert A. Montgomery is 1320 Devon Road, Winter Park, Fla.—EUGENE R. SMOLEY, *Secretary*, 30 School Lane, Scarsdale, N.Y.

'20

It is with sorrow that I must report the death of Myron H. Lee of Riverhead, N.Y.

A most interesting letter has been received from Dan Lord. It is worth quoting in full: "I would like very much to

be with you at our 40th reunion this year, but time and space are both working against it. As you probably remember, I remained at M.I.T. for almost five years after 1920 as a member of the Research Lab of Applied Chemistry. In 1925 I became a tanner and worked for 35 years for the same firm of J. S. Barnet & Sons, Inc., in Lynn, Mass. The first of this year I decided to partially retire and become a consultant to the leather industry. However, far from taking things easy, it seems as though I am busier than ever.

"At this writing I am under contract with the I.C.A. in Washington (International Co-operation Administration) and am working out of Tel Aviv, Israel, as a tanning consultant, with the United States Operations Mission to Israel. Working along with me is an Israeli counterpart who is chief of the leather division of the Israel Ministry of Commerce and Industry. We have a program set up to help the local tanners to improve their leathers, to decrease their costs by better productivity and increased yields in the finished product. The tanning industry in Israel is small by any American standard. They produce, however, all the upper and sole leathers necessary for all men's and women's shoes made in Israel. We are working presently on types of leathers that may open up greater export possibilities. The tanners are very co-operative and a fine group of men.

"The country of Israel is a wonderful example of what can be accomplished by a determined people. There are many nationalities here. They come from Europe, Asia, America, Africa and in all complexions from black to blondes. Yet they have a very strong bond that holds them together, they are all Israelis now. Starting with a land that is almost tropical and averages very little rainfall, they have produced by irrigation with the small amount of water available, wonderful yields of vegetables, oranges, bananas, apples, and other fruits. With the exception of the south, the land is green, very fertile, and the rocky hills and mountains have been terraced and planted with trees and grapes. Below Beersheba to the south, the real desert begins. The water in pipelines has not reached there yet and the land is really bare. The only existing things are a few sparse weeds, a few camels and sheep, a few cattle and a few Arabs living in tents around a muddy water hole. Yet this same land existed over most of Israel only a few years ago. A little water and a lot of determination and work have changed most of the area into a very beautiful place to live. Best regards to all for the best 40th reunion."

Dr. Harold W. Stiegler was recently given a dinner in honor of his retirement after serving for 14 years as director of research at the American Association of Textile Chemists and Colorists. Harold lives in Andover with his wife and daughter. He did industrial research work at the American Woolen Company, National Aniline and Chemical Company, Cheney Silks, Rohm and Haas Company's textile division, and American Cyanamid Company, prior to his affiliation with the Association. During World War II he was a lieutenant colonel in the office of the Chemical Warfare Service. . . . Al Wason

recently received an insignia in recognition of his 25 years with Sturtevant Division of Westinghouse. Al has been manager of the industrial air conditioning section and is now a division sales engineer and director of student sales training. He is the author of many articles on air conditioning and air handling.

Rear Admiral Donald Royce has left Brooklyn, N.Y., and retired to Riverside, Conn. . . . Dr. Charles E. Ruby has left Louisville, Ky., and is back in Boston. . . . Jim Wolfson has left New York City and is living in Neponsit, N.Y.

Comments on the big 40th reunion will have to be reserved until the next issue of *The Review* appears in the fall, but we do not think we will be making any statement we will have to take back when we predict that this will be the most successful reunion yet, and those who have attended know we have set a high goal to shoot at. Comment on class representation at Alumni Day and the presentation of the class gift to the Alumni Fund must also await the actual events which have not taken place at the time these notes go to press.—HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

'21

In view of an exceptionally fine tribute to one of our late classmates, we are waiving our established editorial procedure in order to start this month's notes by reprinting, with the author's permission, an editorial by David Lawrence, entitled "A Story of Courage," which appeared in the April 25 issue of *U.S. News and World Report*: "Aubrey Steen McLeod passed away a few days ago. To the vast majority of the American people he is an 'unknown soldier.' For the epic of his courage is the untold story of a man who, at the age of 23, lost both his legs above the knees but managed in the 43 years thereafter to achieve a success in life. 'Mac,' as he was called by his friends, was one of the first half-dozen Americans wounded in an air raid in France in World War I. He was a volunteer with a U.S. Army ambulance unit which reached France in May, 1917.

"Here, in a letter written from a base hospital in France in October, 1917, to his parents in Indiana, is young McLeod's own description of his experience: 'Practically three weeks I have been lying on my back at the hospital and although it is very tiresome, I cannot complain, for I am exceedingly lucky to be alive. On the night of September 4, I was on guard with nine others and was sleeping in the reception tent when I was awakened by an explosion. No sooner was I on my feet than a bomb exploded across the street, and then one exploded just five feet from me. It shattered my left foot and filled both my legs with shrapnel, and a piece passed through the fleshy part of my side. Added to this, it was a poisonous shell.

"They amputated my left foot that night. Then gas poisoning set in, and they had to take off both my legs near the hips in order to save my life. If it had happened on the battlefield I probably would

not have lived. I was very fortunate being hit low, for five of our men were killed that night near here. I am receiving the best of care, and my legs are getting along splendidly. If everything progresses favorably, I should be home about November 1. Now please don't worry about me, for I am getting along fine. I shall be given artificial legs and will be able to get along O.K.'

"The wounded man was treated at Walter Reed Hospital in Washington for 11 months and then was transferred to a Boston hospital, where he was fitted with artificial legs. He decided to continue his studies. He graduated in 1921 from Massachusetts Institute of Technology as a chemical engineer, and then earned a master of arts degree in economics at Harvard in 1925. He attended classes in a wheel chair and took part in social activities as if he were as able-bodied as the rest of his classmates. He once said, as reported in the *Boston Globe* during his college days: 'The way I look at my case is this. There are numerous people who, in the excess of sympathy just at present for a wounded man, wish to do everything for him; but in the years to come, when the enthusiasm has dropped, the man has got to be able to make something for himself. So, as I lay in the hospital for so many months, I decided that I would gain the best education I could and not let my misfortune interfere in the continuation of my studies which were interrupted by the war. I made up my mind I would go on as though nothing had happened and to let nothing make me sour or discontented. I eat well, sleep well, and have all kinds of ambition and optimism. I want every wounded or disabled man back from the war to take note of my case. There could hardly be a more used-up man than I am, and yet I want the boys to take heart and go to work and make men of themselves. Why, a disabled man can do many things and, very often, can fit himself for a place in which he can earn more money than he ever earned when he was sound.'

"Mac's excellent judgment on investments enabled him to accumulate a small fortune. He became one of the most expert of forecasters of business conditions. He was appointed Actuary of the United States Treasury Department and served there from 1930 to 1937. He was noted for the accuracy of the estimates of future tax receipts which he annually gave to congressional committees.

"Never did Mac falter. Never did he refer to his handicap as a barrier to anything he wanted to accomplish in life. Two years ago he lost his wife, the high school sweetheart who married him after his return from France. She, too, lived a life of courage. The parents, moreover, instilled courage in their only child, Norman Bruce McLeod, who volunteered in World War II for the hazardous duty of a U. S. Navy 'frogman,' and later was awarded the Silver Star. Nearly 20 years ago, Mac joined the staff of this magazine as an economist. At the time of his death of a heart attack on April 9, 1960, in a Washington hospital, he was chief of the economic unit of *U. S. News and World Report*. We salute an able economist, but we salute as well a man of unflinching

courage. May his fortitude and determination always be an example to all who suffer physical handicaps. For, while the body may be maimed, the spirit of a man can be invincible."

Aubrey was born on February 25, 1894. He attended Norwood High School and Purdue University, joining us in our junior year and graduating with us in Course XV. He had been an investment counselor prior to his service with the Treasury Department. He is survived by his son, Norman, an Amherst graduate, who lives at 6 Oak Bend Drive, St. Louis 24, Mo., and two grandchildren, to whom we express sincere sympathy on behalf of the Class of 1921.

We are indebted to Mr. Lawrence for his courtesy in letting us publish his stirring epitaph, and also to Dale D. Spoor '22, Ray St. Laurent, Ed Farrand and Warrie Norton for their kind words about Aubrey. Dale says: "I wanted to be sure you saw the attached, which you may want to reprint as a fine tribute to a man of unflinching courage." Ray adds: "It was my privilege to know Aubrey well. He came to my home when in Boston and we have kept in contact over the past 39 years since graduation. I last saw him in Washington in December, 1959. We will miss him very much." Ed Farrand notes: "There are no words I could possibly add to the editorial except to report that Aubrey had substantially supported the Alumni Fund every year since its inception." Warrie phoned that he wanted the entire class to see the editorial.

Christopher Coleman Carven, chief architect of the engineering firm of Parsons, Brinckerhoff, Quade and Douglas, died on March 11, 1960, in New York as he prepared to leave on a business trip to New England. It is with heartfelt sorrow that we extend to his family the sympathy of the entire Class of 1921. A native of Dorchester, Mass., Chris was born on March 4, 1899, and prepared for Technology at Chauncy Hall School. A student in Course IV, he was active at the Institute as a member of the Architectural Society, Frieze and Cornice, Masque, Glee Club, the assistant art editor of *Technique 1921*, Tech Show chorus, and the author of the book for the celebrated Tech Show 1921, "Patsy." He had been on the staff of Stearns and Brophy, New York, and then became a specialist on church architecture with B. G. Goodhue Associates, New York, being assigned complete charge of the building of the Church of the Heavenly Rest, among others. He was later on the staff of Madigan-Hyland in New York and then he supervised the architecture of buildings for U.S. naval yards as a member of the Drydock Engineering Corps. In 1944, he became chief architect for Parsons, Brinckerhoff, Quade and Douglas, and was well known for his design of restaurant and administration buildings on the New Jersey Garden State Parkway, the Pittsburgh and Albany airports, the Albany bus terminal, the administration building for the Hampton Roads Bridge and Tunnel and for the Richmond-Petersburg Turnpike, as well as other projects connected with bridges and highways. He is survived by his wife, Mary; two daughters, Mrs. Paul Byrne of Milwaukee and Sister Mary Melania of

Hollis, N.Y.; two sons, Christopher J. of Westfield, N.J., and the Rev. John W. Carven of Northampton, Pa.; his mother, Mrs. Rosalie A. Carven, and a sister, Claire, both of Jamaica Plain, Mass. We are indebted to C. Yardley Chittick '22 of Boston for his considerable aid in sending us the news of Chris's passing.

Ed Farrand, our class agent in the deep South, writes from his colonial plantation, Leesburg, Ga.: "I had a wonderful surprise visit in March from Larc Randall and Jim Parsons on their return trip from the 1921 reunion in Mexico City. I enjoyed seeing them tremendously." Another letter from Ed quotes Larc as having had an appendectomy on his return to Boston and outlines his plan to visit Hawaii during May for recuperation. Hope the Honolulu quartet received this news in time to give Larc the usual red carpet treatment; also that our class agent from Boston made his way back to his advertising business in Beantown in good health and in time to join the 1921 contingent at Alumni Day. A pleasant surprise for Maxine and your secretary was the visit of Harmon B. Deal, Jr., and his wife, of Evanston, Ill., bearing greetings from our former near neighbors in Glen Ridge, N.J.—Cora and Harmon, Sr. '20, now of Merchantville, N.J.

Edwin S. Lockwood, recently retired from Public Service Electric and Gas Company, New Jersey, sends his new home address as Route No. 2, Box 151A, 1712 Home Place, Salem, Va. . . . Muriel and George F. B. Owens have made their annual migration north from their winter home in Florida and can now be reached at P.O. Box 93, Islip, N.Y. . . . Horace B. Tuttle says his home address is Park Avenue, Bloomfield, Conn. . . . Dave and India Woodbury made their umpteenth annual cross-country journey from their winter home in Scottsdale, Ariz., to their summer abode on Shore Road, Ogunquit, Maine.

John J. Healy, Jr., gives his new home address as 7640 Maryland Avenue, Clayton 5, Mo. Jack is a member of the corporate planning group of Monsanto Chemical Company and is the new national vice-president of the American Institute of Chemical Engineers. He is a summer resident of Scituate, Mass., and the fleet captain of the Scituate Harbor Yacht Club. . . . Arthur W. Morse has moved his home from Boxford, Mass., to Brookline Farm, Greenwich, Conn. . . . Dr. Axel G. H. Andersen, formerly of Worcester, Mass., now lives at 15 West View Terrace, Wayland, Mass. . . . Information has been received that Pang-Nin Soo, whose home was in Shanghai, China, can now be reached at a new address, 29 Lyttelton Road, 1st Floor, Hong Kong.

A most welcome personal note arrived from William Rose, Jr., of Milford, N. J. Our sincere thanks to Harold Bugbee, the ever-helpful secretary of our good neighbors, the Class of 1920, for sending us a detailed biography of Henri Pell Junod, which appeared in *The Black Diamond*. A partner of Pickands Mather and Company, Cleveland, and head of its coal department, Harry is active as a director of several companies, the national president of the American Coal Sales Associa-

tion, and in community affairs. We are interested to note that he continues his interest in sports as a good tennis player—the sequel to his co-holding of the world's record for the 60-yard dash while a member of the M.I.T. track team. . . . Henry R. Kurth was named on the Alumni Association ballot as our class representative on the Alumni Council. We all owe Chick a debt of gratitude for carrying on this activity so well for so many years. . . . According to the April Review, Ted Steffian received the "Residential Citation" award from *Progressive Architecture*.

Dr. Joseph L. Gillson, chief geologist of the DuPont Company's development department, has retired after more than 30 years with the company. As the new national president of the American Institute of Mining, Metallurgical and Petroleum Engineers, he will be its representative at the International Geological Congress in Copenhagen. . . . Retirement is also reported for Arthur E. Raymond, senior vice-president and 35-year veteran of the Douglas Aircraft Company. . . . Albert E. Bachmann is the subject of a beautifully illustrated and well-written full-page article, headed "Honors To:" in the February, 1960, issue of *The Paper Maker*, distinguished publication of the Hercules Powder Company. . . . William B. Plummer writes that he has built a home at 324 Inter Bay Avenue, on the waterfront in Warrington, Fla., near the Naval Air Base, and is continuing the consulting activities he formerly carried on in New York City.

As an aftermath of the 1921 reunion in Mexico, Ray and Helen St. Laurent traveled up the West Coast and have written and phoned us various reports of their trip, from which the following are excerpts. In Los Angeles, they were guests of Sam and Lila Lunden at a meeting of the M.I.T. Club of Southern California, where they met Jack Barriger's son, John '49, and his wife. They also visited the Lunden's grand new home in San Pedro, overlooking the bay. Next they visited Palm Springs with Jack and Marge Kendall and also the Kendall's new dream home in Pasadena. In San Francisco, they just missed seeing Decker G. McAllister, who had left the same day for a vacation in Hawaii. (Wonder if the Honolulu quartet knew about this?) Ray talked with Eliot Underhill, who lives in Los Gatos following his retirement, and also with Archie L. Mock, who does financial and management work although mostly retired. In Denver, Ray and Helen visited the very active Dana E. Kepner, who heads his own supply business for large water and sewage systems. Ray says Dana and Beryl now have a beautiful home in Crestmoor. Dana's son, Harrison, Colorado '52, is in business with him. His daughter, Barbara, also lives in Denver. There are three grandchildren.

A very pleasant and happy summer to you and your family. It's never too late to send your check to the Amity Fund and thus ensure that you will be among those present when we resume these notes to begin our 40th year around the cheerful 1921 fireside in the next issue of *The Review* in November. Of course, the first items of business will be about our par-

ticipation in Alumni Day on campus at M.I.T. last month and the various news items which we hope you or your wife or your secretary will send to us during the summer. The main item, which is already building up in a steady crescendo of enthusiasm and excitement, is our BIG 40th reunion next June with wives and families at the Mayflower Hotel, Manomet, Mass., coincident with the mighty M.I.T. observance of Technology's own 100th anniversary, at which we will be a specially honored class. Plan now to be there and don't miss this biggest event of our class history. — CAROLE A. CLARKE, *Secretary*, International Electric Corporation, Paramus, N.J.; EDWIN T. STEFFIAN, *Assistant Secretary*, Edwin T. Steffian, Architect, 11 Beacon Street, Boston 8, Mass.; MELVIN R. JENNEY, *Fortieth Reunion Chairman*, Kenway, Jenney, Witter and Hildreth, 24 School Street, Boston 8, Mass.

'22

Early in May your secretary had a nice visit with Harry E. Rockefeller in his new, luxurious corner office, seven floors above Park Avenue in the modern Union Carbide Building. Harry is looking well and was looking for the various gadgets which are expected to perform automatically in his world of tomorrow. We can count on him for attendance at the next reunion and for any other support we need in the meantime. He says that Ray S. Hamilton '24 has retired to the good life in Virginia—a good place to stop in for a visit. Also saw Jack Zimmerman '23 who is still trying to find out where to turn off the lights in the building.

The announcement of the Second Century Fund will tell us how we can cooperate in the event with our class gift. It should give a great boost to our goal and we will give the Fund a greater boost by pattern of accomplishment. We can always burst a few buttons over the very fine participation to date—and the big ones from us all are still to come with the enthusiasm of this new vision of the future. Your secretary is leaving his job as president of the Buffalo Chamber of Commerce and will have nothing more to say about Buffalo's fine people, cultural advantages, and great industrial climate. He will, furthermore, keep secret the news of cooling lake breezes air-conditioning western New York for the next six months. Just stop in any time and be convinced.

Some interesting new addresses include Francis E. Slayter, Russ Building, San Francisco, Calif.; Lucius Elder, Jr., Pleasantville, N.Y.; Dr. Clarence Scamman, St. Petersburg, Fla.; Keble B. Perine, Mt. Claire, N.J.; and Lester Williams, Silver Springs, Md. . . . Our sympathies go to the families of deceased members Hugh M. Doyle of San Francisco; Wilbur A. Steuer of Cleveland and Malcolm Dodge of Winchester. Please send notes about yourself or any other classmate to—WHITWORTH FERGUSON, *Secretary*, 333 Elliott Street, Buffalo, N.Y.; C. GEORGE DANDROW, *Assistant Secretary*, Johns-Manville Corporation, 22 East 40th Street, New York 16, N.Y.

'23

This is the last issue of class notes before the summer vacation period. Your class officers hope that all of you have fun at your favorite pastime.

An interesting note from Howard Russell reads as follows: "You might be interested to know that I was in San Francisco early in February and attempted to look up Launcelot W. Hanson, II, who is vice-president and divisional manager of the Armo Drainage and Metal Products, Inc., Berkeley, Calif. Unfortunately, he was at Palm Springs on vacation, but I learned through a neighbor, Frances E. Slayter '22, that he is well, happy and prosperous, with a summer home at Lake Tahoe, Calif. . . . The latter part of March I was in Los Angeles and phoned Forrest G. Harmon, X, who, as you know, is president of Tubesales in Los Angeles. Frosty seemed quite happy. He claims that his course in economics at M.I.T. was a great help to him in arriving at a decision to build a plant in New Jersey. It did not appear to be economical to buy tubes in the east, ship them to California warehouses and then sell them back to customers in the east. He wished to be remembered to the entire class.

"While in the waiting room of United Airlines at Los Angeles, on my way to Las Vegas, none other than John Burchard sat down beside me. He was on his way to San Francisco to meet Mrs. Burchard, and together they were flying to Tokyo where John was to give a series of lectures. He looked very dapper in his new alpine hat ensemble. . . . Believe it or not, I went to Las Vegas for business meetings and a convention. Of course I did have a little time to take in the sights and they were beautiful—whether they were American, English, French or Japanese. My net loss on gambling was 10¢."

Another note from John Burchard reads as follows: "It is a small world! Marjorie and I are just back from five weeks in Japan. At the Los Angeles airport I encountered Howard Russell who was on his way (shh!) to Las Vegas. In Kyoto we saw Cecil Green and Mrs. Green twice on consecutive days. I went to Japan as one of four Americans selected by the Japanese to participate in a colloquium on science and modern civilization, a very interesting experience."

A short note from Miles N. Clair, President of the Thompson and Lichtner Company, Brookline, Mass., advises that he was recently elected a member of the Board of Directors of the American Standards Association. . . . Archie Williams, Vice-president of the American Hardware Corporation responsible for industrial relations, was the main speaker in March at a dinner meeting of the Chamber of Commerce Personnel Directors Council held in Worcester, Mass., at the Hickory House. His topic was "Trends in Collective Bargaining and the Impact of Arbitration Awards on Contract Language." Archie has been a member of the Connecticut State Board of Mediation and Arbitration since 1955.

Albert Noble (Admiral, USN, Ret.) is Vice-president and member of the Board

of the Vitro Corporation of America. He resides in Washington, D.C. . . . Joseph P. Keegan recently announced the formation of Joseph P. Keegan and Associates, Inc., at 20 North Wacker Drive, Chicago, Ill. Joe is president and their business is personnel training in the food industry, including all phases of sales, production and operations. We all wish you success in this new venture, Joe.

A short note from Earle (Stubby) Griswold indicates that he picked up a case of infectious hepatitis in England last December and got back on the job late in April. We are sorry to hear of your troubles, Subby, but glad that it is all behind you. Incidentally, Subby is doing a fine job supporting the Proctor Scholarship Fund.

Dr. and Mrs. Julius Stratton opened their home on Saturday, May 7, in connection with the home visitations in Cambridge for the Institute of Contemporary Art. Excerpts from an article in the *Boston Traveler* read as follows: "Of course you won't aspire to anything on the scale of the 20-room president's residence at M.I.T. but you'll love this great house and formal garden. Here's a lesson in how to keep very large rooms looking livable and lived in. The stately house on Memorial Drive has an unparalleled collection of contemporary paintings and sculpture, too. Dr. and Mrs. Julius A. Stratton are discriminating collectors. There is much to be learned about subtle muted color schemes in the Strattons' house—a range of most beautiful greens for instance in the library with burnt orange accents. If you don't know what's being done in woven fabrics you'll learn here. The copper planters in all rooms hold tall, exotic plants including orchids. A chess set on a table, books, Mrs. Stratton's free form flower arrangements on mantels and end tables make 111 Memorial Drive very lived in. Since 4,000 guests a year are entertained here, many from far-off countries, one likes to think they see so gracious a host and hostess and so warm an American way of life."

Your secretary is appreciative of the notes received from various members of the class. Keep up the good work. Let's hear from more of you so that the class notes will be more interesting.

It is with regret that we report the deaths of some members of our class: Arthur Edwards died on April 25 when he was stricken with a heart attack in downtown Boston. Arthur was with the Stone and Webster Engineering Corporation, and lived in Wellesley. He was born in Chicago and his father was dean of Northwestern University Medical School. He leaves his wife, Constance, a daughter, Eleanor Susannah, and two sons, Arthur and George, all of Wellesley. Last month we reported the deaths of Francis Minot and Jonathan Brown, 3rd. We would like to report additional details: Francis Minot was an internationally known ship designer, engineer and oceanographer. He designed the research ship *Atlantis* for the Woods Hole Oceanographic Institute while in a business partnership with the late Professor George Owen, then head of the Naval Architecture School at M.I.T. He was killed in an automobile accident at Falmouth. He leaves a son, Francis,

Jr., of Falmouth and three daughters, Mrs. Olney Gilmore of Hyde Park, Vt., and the Misses Elizabeth and Muriel of Cotuit. Jonathan Brown died at his home in Harvard, Mass., after a prolonged illness. Mr. Brown retired in 1958, because of ill health, from his post as President of the Frank Smith Silver Company of Gardner. He was associated previously with the advertising firm of Wood, Brown and Wood in Boston.

We wish to report the following address changes: John D. Cochrane, Jr., 1101 Aqua Lane, Ft. Myers, Fla.; Edgar D. Deming, 30 Wilshire Park, Needham 92, Mass.; Robert H. Henderson, 42 Stoneridge Road, Summit, N.J.; George H. Hurley, 4002 Vernon Avenue, Brookfield, Ill.; Dr. Charles S. Keevil, Old Winter Street, South Lincoln, Mass.; Lawrence W. Jordan, 1588 Boulevard, New Haven 11, Conn.; George I. King, Jr., Highland Mills, N.Y.; Columbus E. Lord, Apt. 329, 2000 North Adams Street, Arlington 1, Va. — HERBERT L. HAYDEN, *Secretary*, E. I. du Pont de Nemours & Company, Leominster, Mass.; ALBERT S. REDWAY, *Assistant Secretary*, 47 Deepwood Drive, Hamden 17, Conn.

'24

Here we go on our last column before the summer respite. No immediate affair of class significance to look forward to such as a gala reunion, but Alumni Day is coming up and some of us will get together then. Will have gotten together, rather, by the time this appears.

Most intriguing item of the month is a feature story in the *Boston Globe* headed "Two-drink Limit at Beacon Hill Buffets — Mr. Gourmet Blends Good Food, Talks." And you'd never guess who Mr. Gourmet is. None other than Vincent K. Cates, and there's an accompanying photo of a very dapper Vin in dinner jacket presiding over a chafing dish. Had always thought Vin came back to Boston to work, but the story says it was to "enjoy life, to dine well in good company." In any event, Gourmet Cates organized something called The Beacon Hill Wednesday Night Buffet Group. It's limited to a very few couples "who enjoy good food, drink and conversation," but the drink, as the headline says, is limited to two cocktails. "We dine when the food is at its best and we know we're not eating old newspapers." Only talk is unlimited, everything from art, books, science, sports, to home life in Kenya. There's a sample menu starting with a Grande Bretagne Cocktail and ending with a Melange of Plums and Ginger. In between are Univitch Soup, Chicken Kiev, Pinot Chardonnay, and other assorted delicacies. Can this *really* be Vin Cates!

Couple of speech-makers made the news. Vin Lysaght told a Worcester audience all about the "Hardness Testing of Materials," and Howard W. Lewis, a sales consultant, spoke on "Sell More in Less Time" in Connecticut. Howard was with us for two years. This is the first time we've seen his name in the news. It's not news, of course, when Paul Cardinal makes a speech. Latest we've heard about was at

a two-day "Safety Parley" on his home grounds. Paul sent along a list of those at the '24 luncheon in April. Good turnout, 16 in all, headed by a "Walter Babby," it says.

One of your long-lost classmates appeared in the news lately when he found gold in Ogunquit, Maine. Jim Pearson did not graduate, but some of you no doubt remember him on our Freshman tug-of-war team, or possibly by his sprightly couplets in *Voo Doo*. Haven't had an address for him in years (still don't) but it appears that Jim's a field geologist. His discovery didn't make anyone rich, but it certainly started a gold rush at Perkins Cove. An item of interest is the fact that Dave Woodbury '21, who is something of a prospector and has, in fact, invented a gold panning device, has a summer place looking right down on the site of the strike. Dave was at his winter home in Arizona at the time of the discovery.

We have just had word from Mrs. Velz that her husband, Captain Robert Velz, USN, died more than a year ago. He was one of the navy men in Course 13A. At last we've had word directly from Luang Videt-Yontrakich, nee S. B. Punyagupta, one of our civil engineers. We told you he was in Washington, but not why. Seems that after 34 years with the State Railway of Thailand, the last 15 as chief civil engineer and head of that department, he retired. Now he is in Washington as educational counselor at the Royal Thai Embassy.

News was a bit scarce this month, and when a large envelope arrived in this morning's mail, it seemed like a windfall. The Cardinals are moving and while Paul was cleaning the attic he came across some ancient memorabilia which he sent on — an old *The Tech*, something called the Red Dog Daylie (1923), and of all things, a *Filter Paper*! This looked like a gold mine. Lots of good nostalgic stuff and high humor. The *Filter Paper* was dull as dish-water and the exposés were all of the same sort: "Speakers Slopped At *The Tech* Feast;" "Nose Paint Supplied Musical Clubs in New York;" and "Southerners Soak Up Scotch." Then there was Walter Vamp's nominations for a team which included such players as: Ed Moll, Prison Guard; Ray Lehrer, Tail End; and Professor Passano, something called Hen Cackle. That one probably had us in stitches. Well, that's just about all the nostalgia this column can stand.

When Jimmy Wong became a bishop, I said I couldn't hope to equal that sort of news every month, but now comes one that will be even more startling to a great many of you. Here's an invitation that just arrived as we were going to press: "You are invited to attend a Service of Ordination in New St. Paul's Anglican Church, Woodstock, Ontario, when Denton Massey, for whom your prayers are asked, will be ordained Deacon in the Church of God, on the morning of the Feast of the Ascension, Thursday, May 26th, 1960." From nuclear reactors to the ministry is quite a jump! By the way, if any of you want to reach Dent, he can be addressed at The Rectory, 109 North Alfred Street, Point Edward, Ontario.

So a good summer to all of you, and we'll be back here again next fall. Hope that the intervening months bring news that some of you have been doing things as intriguing as that bit about Vin Cates. By the way, he offered to help any readers of that article to go out and do likewise. If you're in the mood, you can run him down at 145 Pinckney Street, Boston.—HENRY B. KANE, *Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

You will be reading this column some little time after our 35th reunion, but the deadline date of May 16 allows for no reporting on the activities at the Chatham Bars Inn. Those of you who missed the reunion will have to wait until the first fall issue!

One of the advantages of working on the reunion this year has been the opportunity afforded me of meeting with Eddie Kussmaul and Dave Goldman on several occasions. A few days ago, Eddie handed me a clipping from the *Westwood Press*, and I expect many of you would like to know of some of his activities. Eddie has been most active in Westwood during most of the 12 years he has lived there, following 17 years in New York City. He is a member of the First Parish of the Westwood United Church, and has been particularly active in school affairs, having been president of the PTA for two years and a member of the school committee for six years, two of which found him chairman. He has also been active on school building committees. He has just recently been elected the community chairman of the Westwood branch of the Red Cross, another activity which will certainly take a considerable amount of his time. He is, of course, president of the Kelek Company, manufacturers of electrical control and distribution equipment for industry and utilities.

Among messages received in connection with the 35th reunion was a note from Chet Trask who has really faced a rough schedule during the early part of June. He has a 40th reunion at Dean Academy at Franklin, Mass., on the third and fourth of June; his daughter, Martha, graduates on the Dean's List from the University of Massachusetts on June 5; and then falls the 1925 reunion! Chet's daughter heads for Scotland, England, Ireland and Belgium immediately following her graduation, and will be teaching in the Wakefield schools starting next fall.

The Springfield, Mass., *News* carries an item indicating that John Magee, investment counselor, gave a talk to the Civitan Club in Springfield on the subject "What is Happening in the Stock Market." John is a student of the new philosophies in psychology and interpersonal relations. He was co-author of "Technical Analysis of Stock Trends," a text for investors, brokers, and market traders, and widely used in business colleges and schools; and more recently was the author and publisher of "The General Semantics of Wall Street."

As most of you realize, Mary Morrison Kennedy is vice-president of the Sheraton

Hotels Corporation; but what you may not know is that she has recently worked with Mr. Jo Mielziner in making settings for "The Best Man" as completely authentic as possible. "The Best Man," a new play by Gore Vidal, has as its settings two suites in a hotel in a 1960 convention city.

An address change for George Oetinger, Jr., shows that he can be reached at P.O. Box 966, Sea Pines Station, Virginia Beach, Va., having recently moved from New York City. His title is now colonel, having been changed from Lt. Colonel, Retired.

I am sorry to report one death, tardily received here, that of Corbit S. Hoffman, Jr., who died on September 1, 1959.—F. L. FOSTER, *Secretary*, Room 5-105, M.I.T.

'26

Last month I mentioned that one classmate's wife took pity on your secretary and sent in a contribution to the class notes. This is, I believe, the second time in our history that it has happened. I hope more wives will take pity on the secretary. This one was Mrs. Harry Howard and why don't I just let you read what she has to say: "I believe Harry warned you last week that you were about to receive a letter from me listing some of his activities. Actually, I've been badgering him for years to send you some notes but Harry is not much of a hand to talk about himself. If I listed all of his committees since 1926 it would take your whole page but here's a list of current activities.

"Harry F. Howard is still with the Plimpton Press of Norwood, Mass., manufacturers of educational textbooks. He is chairman of the Massachusetts Apprenticeship Council, the state board which encourages and assists in the development of skilled craftsmen and technicians. For several years he has been a member of a committee of state superintendents and textbook publishers, working on better means of presenting educational material in book form. Last November he went to Washington to receive the Elmer G. Voight Award for his contribution to education in the graphic arts, and he has recently been made a citizen of the state of Texas in appreciation for work done in improving the quality of school books. He was chairman of the finance committee which raised money for a new church—the Norwood Congregational—and is now on the building committee. He boasts about four grandchildren—three boys and a girl, and spends his spare time in Orleans, Mass., working on his boat or digging clams. Four years ago he designed and built a house in Orleans and now he is enjoying remodeling a 200-year-old Cape Cod cottage." Thanks, Mrs. Howard—we hope you have stimulated other wives to write.

A clipping tells of another important appointment for a member of the Class of '26: "Duncan A. Crawford, a native of Dedham, Mass., and formerly executive vice-president of the Atlanta Gas Light Company, was elected president of

the company by the board of directors in Atlanta recently. He succeeds R. G. Taber who was named to the newly created position of chairman of the board. The Shiretown native graduated from M.I.T. in 1926, and after receiving his degree joined the Stone & Webster organization. Mr. Crawford joined Atlanta Gas Light in 1943 as vice-president in charge of all properties outside Atlanta. Two years later he was named operating vice-president for the entire system and in January, 1956, was elected executive vice-president." Congratulations, Duncan Crawford.

In addition to receiving a contribution to the notes from a classmate's wife, we received the following from a member of another class. This was a real windfall for your secretary: "Clint Galphin, VI, recently moved to Raleigh, N.C., where he has joined the firm of L. E. Wooten & Company, Consulting Engineers. He previously had been associated with J. N. Pease and Company, Engineers and Architects, in Charlotte, N.C. The M.I.T. Alumni in Charlotte are a congenial group who, with their wives, meet informally for dinner three times a year. We will miss the Galphins, but wish them success in their new community. Our local group includes four other '26 Alumni: Donald Dodge, Martin Grossman, Walter Peterson and Adon Smith."

This last item is a sad one. I have many clippings that cover it. However, a letter from a classmate is such a beautiful tribute that I will use this letter alone. I quote: "John Drum died in Muncie, Ind., on Saturday, April 23. Bird Kelly will send you clippings about him from the Muncie papers. These will give you the information you need about his career, his family, and so on. This note is about John and will be as brief and unsentimental as I can make it, for I could go on and on.

"As we all know, John had many outstanding and unusual qualities. I only want to mention two of the ordinary ones that John had to an extraordinary degree. One was his capacity to inspire friendship. John had innumerable acquaintances, but more importantly he had more good friends, more intimate friends and more people who considered him to be their best friend than anyone else I ever knew. He was ready and able to help when he was needed. He loved to talk, but he also listened and his listening and his forthright comments were of great value to those of us who were lucky enough to spend an occasional hour or so with him over the years.

"The other quality was his courage. He never avoided an issue even though his friends sometimes wished that he would; he always faced things squarely. He knew at our last reunion that he probably wouldn't be around for the next one. But he never faltered. He lived his life in his usual manner as long as he was able; he planned and built for the future as though his own future were assured. He had a great affection for the Institute and for our class. He leaves a gap that cannot be filled. Sincerely, William C. Sessions." This is a sad way to close the class notes for this season. The

summer will, I hope, bring rest, recreation and happiness to all members of the Class of '26 and their families. If you have a moment, we and the rest of the class will delight in hearing from you. Until fall — cheerio. — GEORGE WARREN SMITH, *Secretary*, c/o E. I. duPont de Nemours & Company, 140 Federal Street, Boston, Mass.

'27

J. Robert Bonnar, director of marketing of the dyestuff and chemical division, General Aniline and Film Corporation, recently celebrated his 25th anniversary with the company at a luncheon given by 20 of his business associates. Bob joined General Dyestuff Company in 1935 as a technical representative in the sales department.

Here quoted is a good letter from Phil Darling: "I was transferred from Texas City, Texas, last month where I was Director of Professional Recruiting for the American Oil Company, to the Whiting, Ind., plant of the parent company, Standard Oil Company (Indiana). Am now Head Engineer, Co-ordination for the general engineering department. This takes me out of the 'ivory hunting' field for all kinds of professional talent and puts me back in the technical field. It also lets the younger fellows do a lot of that traveling. As Dora says, we were lucky enough to stay 26 years in one place which was just long enough to raise a family and see the two daughters married to two very nice fellows and have two and a half grandchildren.

"Also we just got under the wire and attended the M.I.T. Club Fiesta in Mexico City in March this year. It certainly was a wonderful experience even though we'd been in Mexico many times before. Superb hospitality is an understatement, starting with Clarence Cornish, '24, the president, his wife Luisa, and all the others. No other '27 men were there but I did see Lobbie Lobdell '17 and his wife, after a lapse of many years. Just can't say enough for the Fiesta and the many interesting new friends."

Frank Massa, President of the Massa Division of Cohu Electronics, Inc., Hingham, Mass., discussed the vital role of underwater sound equipment in the detection of enemy submarines and in other phases of undersea warfare at a luncheon of the Quincy, Mass., Kiwanis Club recently. He also described a few of the unusual products developed and manufactured by his company that are used in the field of ultrasonics, and some of the uses of sound for important industrial and military applications. Frank founded Massa Laboratories, Inc., in 1945 and merged with Cohu Electronics, Inc., in 1958. For 12 years Frank was with RCA in charge of numerous acoustic research and development projects for commercial and military use and five years with the Brush Development Company, responsible for fundamental developments in ultrasonics and underwater sound for the U.S. Navy.

I see Joe Melhado frequently on the morning train. He has just concluded a term as secretary of the Westchester Sym-

phony Orchestra, Inc., and is now nominated to be a vice-president. . . . A recent clipping from the Springfield, Mass., *Republican* advises that John C. Parker, architect and artist, was speaker at a guest night program of the Daughters of the American Revolution in Thompsonville, Conn. His subject was "Famous American Homes," and he illustrated his talk with color slides. Also exhibited at this gathering were 15 of his own water colors. John has written many feature articles for New England newspapers and national magazines.

We regret to advise of the death on March 15 of Noel H. Miller, western sales manager, automotive division, Modine Manufacturing Company, Racine Wis. — J. S. HARRIS, *Secretary*, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

Ellis Johnson, VI-A, was a recent speaker at the Case Institute of Technology, Cleveland, Ohio. The occasion was the First Annual Systems Symposium sponsored by Case and held April 26-28. Ellis, who is director of the operations research office at Johns Hopkins University, Washington, D.C., discussed the place of operations research in systems science.

Since our mention of Dick Hoak in last month's notes, we have had the opportunity to read his excellent paper on "Physical and Chemical Behavior of Suspended Solids," which was presented at the 44th annual meeting of the New Jersey Sewage and Industrial Wastes Association, at Atlantic City, N.J., March 11-13, 1959. The paper is an informative summary of an important phase of stream pollution, and one in which the American Iron and Steel Institute has had a continuing interest. Dick is very active in the American Society for Testing Materials Technical Committee D-19 on industrial water and was chairman of the committee responsible for preparation of the recent edition of the society's manual on industrial water and industrial waste water.

Charles Haberstroh, X, is another of our good classmates to change jobs after long association with one company. Shortly after graduation Charlie went to work as a chemist for Lever Brothers Company in Cambridge. Except for active service in the Army Chemical Corps from 1940 to 1946 (rank of Major), he was employed as a research chemist by this same company. Recently the plant in Cambridge was permanently closed and Charlie, a staunch New Englander, took another position near home. In his new activity as a civilian field director for the Army Chemical Corps, Charlie now has his office at the Army Base in Boston.

The Haberstrohs have four children. The oldest, Jane, is graduating this June from Forsyth School for Dental Hygienists. Son John is studying at the University of Nebraska under Navy sponsorship; he is particularly interested in languages. Paul is still in junior high school and the youngest son, Phil, is in

his last year of grade school. — GEORGE I. CHATFIELD, *Secretary*, 11 Winfield Avenue, Harrison, N.Y.; WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

'29

A recent announcement is the appointment of Ted Malmstrom as regional engineer for the Bureau of Sport Fisheries and Wildlife Service in the Boston office. Ted tells me his area of activity is in 11 states in the northeast area of the U.S., and he administers the engineering for both the Bureau of Sport Fisheries and Commercial Fisheries. Under his wing are the aquarium at Woods Hole, Mass., and the Fisheries' labs at both Gloucester, Mass., and Oxford, Md., plus 14 refuges and hatcheries where he designs the engineering of buildings, dikes, dams, and their rehabilitation. He also designs raceways, reservoirs, and buildings for the various fish hatcheries.

It sounds like Ted will be a busy guy covering this amount of territory, and it sounds fascinating. Ted spent his early days with Stone and Webster and the Bureau of Reclamation and the Army Corps of Engineers in designing and constructing dikes and dams all over the U.S. Ted graduated from the Engineer Service School at Fort Belvoir and the Command and General Staff School at Fort Leavenworth and holds the commission of colonel in the Forces. For several years he was associated with the Coca-Cola Export Corporation and lived in Johannesburg, South Africa, designing and constructing the bottling plants for them. Ted is very pleased with his assignment and is looking forward to a great deal of fun in this service in the United States.

Word has come of the passing of Mal Seavey who died suddenly on April 6 in Rockport, Mass. Mal had been on the Rockport Housing Authority for the last five years and had recently been elected to a second term of office. As well as being a graduate of M.I.T., he graduated from the American School at Fontainebleau (France) and was associated with Ashton, Huntress and Pratt, Architects, in Lawrence. During the war Mal built barges for the Navy at Thomaston, Maine, where he was very active in local affairs. In addition to his work with the Housing Authority, he did a great deal of work on the town's zoning and bylaws and wrote a large part of its building code. He is survived by his wife Miriam and three boys: Charles, 18, in the Army, James F., a high school student at Rockport, and Paul, a student in the local grade school.

Our deepest sympathy goes to Mrs. Seavey and the boys.

A notice comes from Mrs. Gerald Eaton that Gerry passed away on March 22 of this year in Philadelphia. Again, our deepest sympathy to Mrs. Eaton.

Since this is the last issue for the season, we hope you have an enjoyable summer and we'll see you in the fall. — FISHER HILLS, *Assistant Secretary*, 62 Whittemore Avenue, Cambridge 40, Mass.

By the time this set of notes is published, our 30th reunion will be just a fond memory and, if possible, an even greater success than our 25th. We shall be reporting to you in November all the highlights of this great occasion.

Some time ago we came upon an article in the Framingham, Mass., *News* about Jim Bain. The article stated that he is an engineer for the Commonwealth of Massachusetts in Worcester County and is a registered land surveyor in Massachusetts. For the last 12 years he has lived in Framingham with his wife and two children, and has been vitally interested in town affairs. He is now serving his second term as town-meeting member, and has been active in the P.T.A. Associations and P.T.A. Council. Currently he is committee chairman in the newly formed Better Schools Association.

We have also learned through an article in the Lowell, Mass., *Sunday Sun* that Myron Smith, sales manager of General Radio Company of Concord, Mass., has been appointed its director of sales. A registered professional engineer in Massachusetts and Connecticut, he has managed the New York and Los Angeles district offices of this company, was appointed sales engineer manager in 1944 and sales manager in 1948. A resident of Lowell Road, Concord, Mass., he was treasurer of the Concord Orchestra, Inc., and has been active as a member of the standing committee of the First Parish in Concord.

An article in the *New York Times* dated December 29, 1959, brought forth the news that our classmate Morris Shaffer was married December 28, 1959, to Dr. Margaret Smith of New York, in the Community Church of that city. Morris is chairman of the department of microbiology at Tulane Medical School and his bride, a physician, joined the department of pediatrics at Tulane in March, 1960. She has taught there previously and also taught at Johns Hopkins, where she received a medical degree, and at New York University. Morris was formerly on the staffs of M.I.T., Harvard Medical School, and the Squibb Institute for Medical Research.

Through a letter to Louise Hall, we have heard from Charlie Maskell, who says he is "gradually closing out his illustrious (?) government career" and at present is associated with the office, chief of engineers. He is in the Army Operations Branch, Eastern Section, Room 2422—located approximately across the street from the Washington National Airport. Charlie is handy to any of our classmates who might be stopping off in Washington, D.C. Since 1934, he says, he has run into the following classmates on the streets of Washington: Wayne Soverns, Mary Forsberg, Victor Chamales, Ben Smith, Sam Zisman, and Fred (now Eric) Pawley. Last year, during the football season, he thought he saw Louise Hall at a Maryland University football game, but when he reached the particular spot, the apparition had vanished.

We read in the *New England Gas and Electric Association* news that Charlie

Abbott was elected vice-president, operations, of the NEGEA Service Corporation. Charlie, who joined the New England Gas and Electric System in 1930, was appointed electrical engineer in 1940 and chief electrical engineer in 1956. He has been a director of the corporation since March, 1958.

We had a letter from Herb Wampner last March telling us that he would not be able to attend our 30th reunion because he expected to be on the West Coast attending his daughter's high school graduation and planning a permanent move to the New York area. He sent us a news release indicating that he had been elected to the Board of Directors of Reichhold Chemicals, Inc. Herb, who is Reichhold's director of research, has been with the company 17 years. In directing the rapidly growing R.C.I. laboratories, he maintains close liaison with the company's domestic plants and foreign subsidiaries. It was pointed out in this release that his extensive knowledge in the field of research would prove valuable to the Board of Directors in directing the efforts of the company whose progress is primarily dependent upon research and development in new fields.

We have the following changes of address to report: Harry Beohner, 40 Norvel Lane, Stamford, Conn.; Prof. Raymond Binder, University of Southern California, Dept. of Mechanical Engineering, University Park, Los Angeles 7, Calif.; Hermann Botzow, R.D. #2, Hinckley, Ohio; Clinton F Burns, 112 Northbrook Lane, Bethesda 14, Maryland; Robert Clyne, 1400 Lake Shore, Deerfield, Illinois; Robert Cook, Virginia Metal Products, Inc., Orange, Virginia; Gilbert Cox, The International Nickel Company, Research Laboratory, Oak St., Bayonne, New Jersey; Lawrence N. Gonzalez, American Embassy, The Hague, Netherlands; Henry N. Halberg, U.S. Geological Survey, 217 Main Street, Little Rock, Arkansas; Orland Johnson, 1771 59th Avenue, Sacramento 22, California; Edmund Koperski, Box 705, 831 East Providencia Avenue, Burbank, California; Prof. Yuan H. Kuo, 207 Gloucester Building, Hong Kong; Donald McAndrew, 4987 Sweetbriar St., Baton Rouge 8, Louisiana; William McDowell, IBM Corporation, North Street, Endicott, New York; C Thurston Ramsey, 15 Pomeroy Road, Madison, New Jersey; Arthur Roberts, 151 First Street, Wadsworth, Ohio; George Schatz, 3303 Jefferson Avenue, Cincinnati 20, Ohio; Robert Sealy, Jr., 71 East 77th Street, New York 21, New York; Harry Shaw, The Phelps Dodge Refining Corporation, El Paso, Texas.—GEORGE P. WADSWORTH, Secretary, Room 2-367, M.I.T.; RALPH PETERS, Assistant Secretary, 249 Hollywood Avenue, Rochester, N.Y.; LOUISE HALL, Assistant Secretary, Box 6636 College Station, Durham, N.C.

'31

Marcel Aillery reports that he has left Sutton Place, New York City, for the country—and enjoys it. As some of you will remember, at the time of our 25th reunion Marcel had two children—with

a third "scheduled" for June 10, 1956. I am not sure whether or not the third one arrived on "schedule" but am glad to report that he is now the proud daddy of a fourth. In New Canaan, where they now live, there is no doorman to chase the children off the grass—and they are having a wonderful time with the snakes and turtles. Marcel is active in the American Society of Civil Engineers, and is chairman of the executive committee of the power division. He enjoys attending the national conventions and setting up the various programs. In June, he attended a convention in Reno—dedicated to dams. (That is a new twist for Reno.)

Emmons Raymond hasn't changed much in the past 30 years. He is missing a few hairs—and eating jello for dessert, as are so many of us. He moved to New York from Albany last August . . . and as far as I can tell doesn't miss Albany. His daughter Alene, who was in Lasell Junior College at the time of our 25th reunion, is married now and living in Albany. . . . Charley Terwilliger tells me that his daughter Anne will have graduated from Western College by the time you read this. She majored in biology and has a job in Cincinnati working on cancer research. Charley's son Bob starts college this September. He will be at Rollins College, Winter Park, Fla., where he'll take a co-operative course with M.I.T.

A note from our prexy, Howard Richardson, tells that the place for our 30th reunion has been selected. It will be at the Wianno Club, Wianno, Cape Cod, Mass.; the time will be the weekend of June 9-12, 1961. Howie will select a general reunion chairman shortly—and by the time you read this you'll undoubtedly have heard from him directly.

Hope you all have a good summer and I'm looking forward to writing you again with the fall issue of *The Technology Review*.—EDWIN S. WORDEN, Secretary, 6 Murvon Court, Westport, Conn.; GORDON A. SPEEDIE, Assistant Secretary, 90 Falmouth Road, Arlington 74, Mass.

'32

Tom Rhines, IX, dropped into the office just as I was preparing these notes so that I shall start off with some of his tales while they are fresh in my mind. He is still assistant engineering manager of the Hamilton-Standard Division of United Aircraft in Windsor Locks, Conn. With the propeller business being rather stable now, his division is investigating many other products as part of their diversification program. Tom has been working with the Zeiss people of Germany on the modification of their high intensity electron microscope to make it into a cutting machine. They are able to generate 100 million watts per square inch of metal surface. This serves to either disintegrate the metal, weld it, or do anything else under a vacuum. Tom is really enthusiastic about the many future applications of this electron beam device which they will manufacture. His older boy is now a junior at Amherst, but of greater interest to us is the fact that his younger boy has just finished Loomis School and has been

accepted for admission to M.I.T. next September. I think Minot Bridgman, I, was the first of our classmates to have a son graduating from M.I.T. I wonder how many others of us will be following suit.

Speaking about exotic products from an old-line company, there was a full-page spread in the *Boston Sunday Globe* of April 3 on the activities of Arthur G. B. Metcalf, XVI, President of Electronics Corporation of America whose main office is located adjacent to M.I.T. on Memorial Drive. In addition to the standard electronic items for flight safety systems in aircraft, this company has developed an electronic chef to cook a packaged type of meal in two to four minutes. They have also developed controls "all the way from the counting of cattle to the protection of meat, the control of production in breweries, and even to the singeing of chickens on the way to their ultimate package destined to the consumer." Who says that M.I.T. men are devoting all of their activities to outer space?

George H. Sherwood, IV, who is in the architectural business for himself in Boston, has received quite a bit of publicity for the work he has been doing on the restoration of colonial homes and other buildings. He has been lecturing around Massachusetts on period pieces of furniture and the restoration of some fine old homes from the Seventeenth Century. Presently he is at work on remodeling an addition to the Harrison Gray Otis House in Boston and the Old Mill in Sandwich. At one time he had worked on part of the Williamsburg, Va., restoration.

Charles Spiegel, XV, dropped me a note stating that he had changed his position from being an engineer with the Department of Water Resources in California to engineering instructor at El Camino College in California. Charlie was working on the Feather River project to bring water from northern to southern California, which includes pumping water over 3,000-foot high mountain ranges. . . . Another Course XV man, John W. Leslie, is active in all kinds of water works as chief civilian engineer of the New England division of the Corps of Engineers. He told me that he is going to attend the World Power Conference in Madrid in June and will present a paper on the Passamoquoddy Tidal Project. He will then visit a number of hydroelectric stations in Spain, as well as some nuclear power plants. . . . To finish out the Course XV news, Bennett Archambault has been elected a term member of the M.I.T. Corporation.

F. Carlyle Roberts, Jr., XI, has left his assignment with the U.S. Public Health Service in Washington on loan to the World Health Organization. He will be on a two-month health program observation trip to Brazil, Peru, Guatemala and Mexico. As training officer in the international education and exchange branch of the Division of General Health Services he arranges training programs for foreign participants who come to the United States for advanced technical education in the field of environmental sanitation. He will be studying available technical training and educational facilities for Public Health sanitation personnel in Latin American countries on this trip.

Speaking of trips, it was my good fortune to have a two-week consulting assignment for the International Atomic Energy Agency during May. I was assigned as consultant to the Norwegian government and observed some of the atomic energy installations in Norway, with particular emphasis on radioactive wastes disposal. This was the first time that I had been to the land where my mother and father were born and I met some of my cousins and uncles whom I had never seen before. I traveled on to Vienna to the agency's headquarters for a few days and then to Monaco on a special mission to the Oceanographic Institution of Monaco. I have been a consultant to industry and government on many planes, but this was the first time that I had been a personal consultant to a ruling sovereign. It was my good fortune to have been selected to advise Prince Rainier on the program of research which he wants conducted in his new Laboratory of Applied Radioactivity in the Oceanographic Institution. I found him to be a very charming, intelligent and enjoyable person to be with, even in the austere surroundings of his palace. He is certainly well versed in the field of oceanography and very anxious to put the services of his laboratory to use in solving some of the international problems involved in the disposal of radioactive wastes to the sea. — ROLF ELIASSEN, *Secretary*, Room 1-138, M.I.T.

'34

This is the final issue of the first year's operation by the multi-secretary effort. This Cambridge secretary wants to thank each of the others for making it a pleasure to have a part in our class-note preparation.

John B. Skinner, chief industrial hygienist with the American Mutual Liability Insurance Company of Wakefield, Mass., is active in "selling" his profession to the public. He was the principal speaker at the Lowell, Mass., Industrial Safety Council in April. . . . George G. Bull and family took a spring trip: "through the Holy Land, Athens, Istanbul and Egypt. Spent two nights in Beirut and on the second one we were guests of Henry and Nicole Backenstoss at a wonderful Lebanese dinner at the Pigeon Rock Cafe overlooking the Mediterranean. They have a beautiful apartment and seem to be in good health as well as happy." George's home base has been Germany for this past year.

Po Ting Ip "Pete," Civil Engineering, is now in Hong Kong, 218/9 Alexandra House, and would, I believe, like to re-establish some M.I.T. acquaintances. Air mail round trip Cambridge to Cambridge took only eight days. He is manufacturing furniture and rubber footwear and is both enjoying his work and "keeping physically fit." . . . Y. T. Chiu, Mechanical Engineering, also in Hong Kong, married Pete's sister in 1936, so classmates are brothers-in-law as well.

Have a good summer and one of us will have notes in the first fall issue if you will co-operate and just feed in the

copy. — MALCOLM S. STEVENS, *Secretary*, Room 20B-131, M.I.T., Cambridge, Mass.; other *Secretaries*: JAMES P. EDER, 1 Lockwood Road, Riverside, Conn.; G. KINGMAN CROSBY, Longwood Road, Huntington, W. Va.; HAROLD E. THAYER, 415 West Jackson, Webster Groves 19, Mo.

'37

Bill E. Burns has been teaching mathematics in the higher grades at King Philip Regional School, Mass. He has just been appointed to the National Science Foundation Summer Institute in Mathematics, based on his competence and potential as a teacher. The Mathematics Institute is to be held at Philips Academy in Andover, Mass., during eight weeks of the summer. . . . Major General James McCormack, Vice-president of the Institute, and former military chief of the Atomic Energy Commission, has been elected a director of Bulova Watch Company, Inc., where he will devote attention to Bulova's research and development programs.

Bob R. Wagstaff has been elected engineering vice-president and a director of United Engineers & Constructors, Inc., Philadelphia, Pa. Bob has been with the United Engineers since 1937 when he joined the firm as an electrical engineer. Since then he has held the posts of assistant electrical engineer, supervising engineer and, most recently, chief engineer, to which he was named in 1956. He is a fellow in the American Institute of Electrical Engineers and a member of the American Society of Mechanical Engineers, National Society of Professional Engineers, Edison Electrical Institute and the Association of Iron and Steel Engineers. He is a registered professional engineer in 14 states. Bob is married, has two sons and lives at 336 Haverford Place, Swarthmore. He is a member of the Springhaven Club, Wallingford, Pa.

Dick H. Ewert has been elected vice-president and treasurer of the Sewall Gear Manufacturing Company, St. Paul, Minn. Dick has been identified with the gear industry in the Chicago area for the last 20 years, having most recently been associated with Foote Brothers Gear and Machine Corporation. Prior to that time he was sales manager for Illinois Gear and Machine Company. . . . Norm Matthews writes to "watch for further publicity and product coverage on man-made diamonds" for which his responsibility is application engineering. Norm also reports, along with Harry Stern, that he is planning to attend the 25th reunion. . . . Your secretary, Bob Thorson, has just been elected vice-president of Nersica, Inc., the Home Improvement Contractors National Association. He has also been elected a director of the Medford Rotary Club.

Bill Bergen is the first man to rise through the ranks of the Martin Company, Baltimore, Md., to the position of president. He joined Martin as a vibrations engineer upon graduation from M.I.T. in 1937. Six years later, in 1943, he won the coveted Sperry Award for his research and development of new aero-

nautical theories and processes. It was his work in this job, and later as chief flight test engineer, that led to the establishment at Martin in 1945 of a guided missile section, with Bill in charge. Bill was named vice-president of engineering in 1951, vice-president of operations in 1953, executive vice-president in 1955 and president last April. Bill lives with his wife and two children near Phoenix, Md. His wife is the former Gertrude Coxon, of Baltimore. Their son, William, Jr., is eight years old; their daughter, Lynn Louise, is two.

This is the last issue of The Review for this season and I want to thank all of you who returned your cards and sent letters and notes. Have a fine summer and drop a line or a card while relaxing on your vacation. — ROBERT H. THORSON, Secretary, 506 Riverside Avenue, Medford, Mass.; CURTISS POWELL, Assistant Secretary, Room 5-323, M.I.T., Cambridge, Mass.; JEROME SALNY, Assistant Secretary, Egbert Hill, Morristown, N.J.

'38

Recently I received a call from Fred Boland, who was in Boston visiting his parents. Fred, who has lived in the Washington, D. C., area for several years, has recently transferred to the Food and Drug Administration. He is involved in the F.D.A.'s program of administering the federal law regarding food additives. . . . A note from Lois (Mrs. Charles) King indicates that Charlie travels to Europe less frequently than a few years ago: only once or twice a year now. They have made plans to spend their vacation in Europe this year.

Fred Viles spoke at the 1960 Industrial Health Conference in Rochester. His topic, "Air Flow Resistance of Flexible Metal Hose." Another speaker was Matt Boissevain of the Electric Boat Division, General Dynamics. He discussed research and development in his organization for a Rotary Club meeting in Norwich, Conn. . . . Curtiss Torrance, who works with Charles T. Main, Inc., in Charlotte, N. C., has been appointed to the Educational Council of the Institute.

A note from Bob Johnson indicates that the subscription to our 25th reunion gift is close to \$48,000. With this word of encouragement, I hope each member of the class will make a real effort to keep the fund growing.

I recently received a letter from Yale Brozen, who writes: "To bring you up to date on my activities, I am now director of research and director of the air research and development command management education program here in the Graduate School of Business. I moved here two years ago after 10 years at Northwestern University where I held a joint appointment on the engineering faculty and the economics faculty." . . . These will be my last notes prepared in Boston. A number of us at Arthur D. Little, Inc., are transferring to the Los Angeles area to get an engineering activity under way there. — DAVID E. ACKER, Secretary, Arthur D. Little, Inc., 1424 Fourth Street, Santa Monica, Calif.

'39

August B. Hunicke has been appointed director of engineering at Kramer Controls Corporation. Kramer, located in Centerbrook, a village of Essex, in northeastern Massachusetts, is a manufacturer of precision time controls as well as synchronous and DC motors. Gus was recently associated with United Shoe Machinery Corporation in Beverly, Mass., as manager of engineering projects in their atomic power department. Prior to that assignment, he was manager of projects for D. S. Kennedy and Company of Cohasset, Mass., designers and manufacturers of microwave antenna systems.

A classmate who has recently made the news (Sunday *Courant*, Hartford, Conn., March 6, 1960) is Dr. Domina Spencer, associate professor of mathematics at the University of Connecticut. She specializes in lighting research, and holds a joint patent on a new fluorescent lamp with the Sylvania Electric Company. Dr. Spencer's new lamp is a vastly brighter fluorescent lamp which literally lays down a blanket of light on a roadway. It is a so-called "aperture lamp" which is 338 per cent brighter than the brightest lamp previously developed. A test installation of these aperture lamps has been set up on one of the entrances to the New Jersey Turnpike. The lamps are mounted in fixtures containing a polished reflector with a parabolic shape.

Dr. Spencer is one of the very few women who have obtained three degrees from M.I.T. At 22 she was associate professor of physics at American University. Before joining the University of Connecticut faculty, she held posts at Tufts and Brown. She has written many papers and now is working on the last of three textbooks in collaboration with Professor Parry Moon of M.I.T. on the subjects of electrodynamics and field theory.

Here is a short item concerning Harold Chestnut, control systems engineer for the General Electric Company in Schenectady. Hal participated in the first annual Systems Symposium sponsored by Case Institute of Technology on the Case campus, in April. The symposium was designed to bring together leaders in science and engineering from government, industry and education.

We are sorry to report that Wilson B. Keene, 43, of 217 Stockton Road, Joppa, Md., died on Saturday, April 30, 1960, at the Maryland General Hospital in Baltimore. Born in Brooklyn, N.Y., Mr. Keene was a graduate of M.I.T., receiving his B.S. in chemical engineering in 1939 and his M.S. in the same subject in 1940.

At the time of his death he was chief of the munitions division, Industrial Operations Engineering Directorate, Engineering Command, Army Chemical Corps. He was a member of the American Institute of Chemical Engineers, the Armed Forces Chemical Association, and the American Chemical Society. He was also a member of Corinthian Lodge, AF and AM, Concord, Mass.

He is survived by his wife, Elizabeth Davis Keene, Simmons 1940, a daughter, Harriet Ann, his mother and a sister.

Services were held on Sunday, May 1, in Bel Air, Md., with interment in the Sea View Cemetery, Rockland, Maine.

An Olin Mathieson Chemical Corporation news release announced recently that Harlow J. Reed has been appointed vice-president for engineering. He will be responsible for evaluating proposed capital programs, and for the maintenance of operating facilities and equipment. Harlow came to Olin Mathieson from the engineering firm of Singmaster and Breyer, where he was a partner. While there he was responsible for the original study that led to Olin Mathieson's entry into the high energy fuel program. He also served as project manager for the design of the Ormet Corporation's alumina plant at Burnside, La., and the aluminum reduction plant at Omal, Ohio. Ormet is a primary aluminum producer jointly owned by Olin Mathieson and Revere Copper and Brass, Inc. Harlow, originally from Wakefield, Mich., lives with his wife and three daughters in Weston, Conn. — OSWALD STEWART, Secretary, 31 Birch Road, Darien, Conn.

'40

By the time you receive this Review, the reunion will be an event of history and we will be looking forward to our twenty-fifth reunion.

Roland Peak writes that he is a division engineer for the Illinois Central Railroad and is stationed in New Orleans. As Roland says, "If I 'have my druthers' I'll stay here the rest of my life." He and Adeline have three children, Sally, 17, who will be going to Vanderbilt next fall, Ronnie, 15, who is about to enter high school, and Julie, 12, who will start junior high in the fall. . . . Loren Wood has been appointed to the staff of Dr. Arthur L. Samuel at the Lamb Estate Research Center of IBM in Cortland, N. Y. Loren's new work is in connection with inventions and patent matters. He has a good start for this new job since he already holds six patents and has several others pending in data systems and circuits.

Dick Pope is the new manager of the marketing research division of Union Carbide Metals Company. Previously, he was manager of the Cleveland sales district for Union Carbide Metals. . . . Herb Hollomon is now head of General Electric's general engineering laboratory in Schenectady. Herb has won numerous awards and is an internationally recognized authority in the field of metallurgy. Previously, he was manager of the metallurgy and ceramics department of General Electric. In 1954 *Fortune* recognized his talents as one of the nation's 10 leading scientists and the U.S. Chamber of Commerce, likewise, selected him as one of America's 10 outstanding young men. Herb also is a member of the visiting committee for the Metallurgy Department at Tech and is on the visiting committee of the division of engineering and applied physics at Harvard. This is just a sampling of honors that have been bestowed on Herb.

James Warden is manager of General Electric's West Milton Site Facilities. In

his new position he is in charge of providing craft and material support to the prototype atomic power plants of General Electric at West Milton. In fact, he is responsible for the entire operation of the facilities and utilities at the plant. . . . Donald Stookey has been awarded the first patent on the new pyroceram glass-ceramic materials developed at Corning Glass Works. This development is considered the most important achievement in Corning research laboratories in the past 30 years. The new material is utilized in making missile radomes and in heat-proof cooking-serving ware.

Frank Lippard is the new manager of the quality control division of the Philip Carey Manufacturing Company in Cincinnati, Ohio. . . . Lt. Col. Woodruff Sullivan has been awarded the Legion of Merit by the Secretary of the Air Force for "exceptionally meritorious conduct in the performance of outstanding service to the United States" while he was with the Third Air Force in England during 1958 and 1959. He was responsible for the design and construction of facilities for the first operational Thor Intermediate Range Ballistic Missile squadrons. . . . Milt Green is assistant manager of the organic research division of Polaroid.

It is with regret that I must report the death of Lt. Col. Eldred G. Robbins, Jr., on March 26, 1958. No other details are available at the present time.

As a final item, Ted Edwards has been named manager of the mining equipment division for the New York District of the Eimco Corporation. Eimco manufactures over 75 per cent of the rock-loading equipment used underground throughout the world.

It has been fun preparing the column for the past 10 years, and I wish good luck to my successor who will be appointed at the reunion. — ALVIN GUTTAG, *Secretary*, Cushman, Darby & Cushman, American Security Building, Washington 5, D.C.; DR. SAMUEL A. GOLDBLITH, *Assistant Secretary*, Department of Food Technology, M.I.T., Cambridge, Mass.; MARSHALL D. MCCUEN, *Assistant Secretary*, 4414 Broadway, Indianapolis 5, Indiana.

'41

Bill Bowes writes: "Last June we moved to Baltimore to join the nuclear division of the Martin Company. Our new address is 7005 Wardman Road, Baltimore. We miss our friends in Pittsburgh, but I am enjoying my work on isotopic power for electrical generation. My area is in the development of new radio isotope fuels, the primary application being for space missions." . . . Bob Luedeman has been named chief engineer, materials, of Daystrom's Weston Instruments Division in Newark, N.J. Bob has been with Weston since 1947, serving as assistant chief engineer and as section chief in the metallurgy division of research and development.

Alan Surosky is president and technical director of General Testing Laboratories, Inc., of Carlstadt, N.J. Al has been

active in environmental testing and in the design of test equipment and facilities since 1942. He previously has held the positions of chief engineer for the United States Testing Company, manager of manufacturing for the Nuclear Development Corporation of America, and staff environmental specialist at Melpar, Inc. . . . Also in the testing field, it is reported that Frank Wyle's prolific business family has again expanded, through the acquisition of Burgoyne Testing Laboratories, in Westbury, N.Y. The firm will be known as Wyle-Burgoyne, Inc. Frank's aim is to broaden his facilities for providing missile and aircraft component manufacturers with testing services and equipment. Frank's other hats, as of this writing, include the presidency of Wyle Laboratories, and the presidency of Wyle Manufacturing Corporation, both in El Segundo, Calif., plus the chairmanship of Wyle-Parameters, Inc., of New Hyde Park, N.Y.

Bristol Laboratories, of Syracuse, N.Y., has announced the appointment of James McNitt as executive vice-president. . . . Also stepping up is Austin Fisher, who received his doctorate in chemical engineering in 1941, and who will become vice-president, technology, for Ludlow Papers, of Needham Heights, Mass. Previously research director, Dr. Fisher will now be responsible for the total technical program, including research, quality control, technical service, and engineering development for all paper and plastic products.

Jesse Wilson was co-author of a paper on "Mechanical Properties of Columbium-Aluminum-Vanadium and Columbium-Titanium-Tungsten Alloys," which was presented at a meeting of the Hudson-Mohawk Section of the A.I.M.E.

The following letter from Joe Bowman needs no further comment from the secretary: "I think the class should know that on March 17, it lost one of its finest contemporaries in Frank Langhammer. He was unfortunately a victim of the great unknown, cancer. Frank was certainly one of our most respected and best loved fellow classmen: we all recall his fine record at Tech, his athletic ability, and most of all, his friendliness and good humor. After working his way through M.I.T., he settled down in Morristown, N.J., working for the Bell Laboratories. He was celebrated for his work on the Nike-Zeus missile and was a design and development kingpin. He was active in P.T.A. activities and Little League and Babe Ruth baseball. His loss particularly hit that part of Morristown that had come to know him and to realize his love for and participation in life.

"He leaves a charming wife Debbie and three fine children, Frank, Jr., 16, Linda, 9, and Lisa, 6. His family is planning to stay in Morristown at 29 Washington Avenue, and would enjoy seeing any '41ers who come that way.

"Frank made many friends along the way, not only in Course II, but in all activities in which he became engaged. We will all miss him greatly, but I feel we should be grateful for having spent a part of our lives with him. I am sure his classmates are the richer for having known him."

And so closes another year; we expect to be back at the same spot in the November issue. Enjoy your summers, all of you, and drop us a line to let us know what you're doing. — IVOR W. COLLINS, *Secretary*, 9 Sunnyside Drive, Dalton, Mass.; HENRY AVERY, *Assistant Secretary*, Pittsburgh Coke and Chemical Company, Grant Building, Pittsburgh 19, Pa.

'42

Harry J. Heineman, Jr., has been selected as one of the 50 members of the Summer Institute for college and junior college teachers of mathematics that is being sponsored by the National Science Foundation at Stanford University in California. Harry is head of the mathematics department at Franklin Technical Institute in Boston. In the line of extra curricular activities he has appeared in several plays of the Belmont Dramatic Club and last year wrote the book for the club's musical, "Nothing So Important." In addition to his degree from the Institute, Harry has degrees from Columbia University and the Sorbonne.

George Toumanoff has been appointed a consultant to the Airborne Instruments laboratory of Cutler-Hammer, Inc. Since graduation George has worked with Lockheed Aircraft in wind tunnel and flight research and with Republic Aviation in flight testing. From 1956 until joining A.I., he was chief flight test engineer for Republic and participated in the development of supersonic fighter-bomber weapons systems, commercial aircraft, and jet power-plant programs. He is a member of the Institute of the Aeronautical Sciences and the Instrument Society of America.

Dr. James G. Buck has just joined the staff of Battelle Memorial Institute and will be engaged in research in physical electronics and solid-state physics. In previous class notes we have reported his activities as director of research of the Erie Research Corporation, teaching at Notre Dame and helping in the development of the x-ray tube at Westinghouse.

Newman M. Marsilius, Jr., continues to combine a very busy life as president of Producto Machine Company of Bridgeport, Conn., with a great many community activities. He was just recently elected president of the Bridgeport Chamber of Commerce and was chairman of this year's United Fund Campaign. In previous notes we have recorded his work as a state senator, his trusteeship at the University of Bridgeport and his participation in numerous charitable organizations.

An increasing number of our classmates are not only contributing to the Alumni Fund but are also helping in the important work of class and regional solicitation. By now you must have received Jerry Coe's letter documenting our class participation at an average of \$27.40 each. This repeat pitch recognizes that class notes readers have done their part in contributing. We add a request that you mention the Fund to all your Alumni associates so that the percentage participation will keep going up.

In the forefront of the participation-increase program are 14 class members who are Chairmen for regional personal solicitation programs. High man is Hugh Schwarz of Orlando, Fla., who has achieved 66 per cent participation from the 61 local Alumni. Lawrence Beckley of Winchester, Mass., and Floyd Lyon of Glen Cove, Long Island, have achieved 50 per cent. Other men running regional programs are C. Estes, C. Ricker, J. Madwed, M. McGuire, R. Beisel, W. Devine, M. Levene, G. Schwartz, J. Stern, R. Mork and C. Lau for a total of 14.

The Alumni Office records tell us that Russ Brown is the very busy president of the New London, Conn., M.I.T. Club; and that John E. Flipse holds the same office in Newport News, Va. . . . Long distance move of the past several months was by Navy Captain Hayden L. Leon. He left Naples, Italy, and is now at the Naval Air Development Center in Johnsville, Pa. . . . Transcontinental moves were made by Robert C. Gentry from West Palm Beach, Calif., to Hialeah, Fla.; and by Captain David F. Kinert from San Francisco to Washington, D.C. . . . Akbar Brinsmade is now in Cumberland, Md. . . . David Christison in Orchard Park, N.Y. . . . Charles O. Dodson, Jr., in Quincy, Fla. . . . Kenneth M. Leghorn in Rochester, N.Y., as president of the Photostat Corporation (a subsidiary of Itek). . . . N. Bruce Oakley in Norristown, Pa. . . . Warren H. Powers in Ramsey, N.J. . . . Robert W. Seavey in Dallas, Texas, and John A. Whitman in Chevy Chase, Md.

We hope you all have a wonderful summer. We shall have more news and comments in the fall. — Ed Edmunds, J. J. Quinn, Bob Keating and your Secretary, LOU ROSENBLUM, Tech/ops, Burlington, Mass.

'43

Occasionally your secretaries miss an issue of *The Review*, but we try to make it up with a more interesting set of notes, such as these. We received a letter from Bill Vallette, as follows: "I haven't seen anything in *The Review* about Warne (Olie) Johnson '42, becoming president of Pettit Paint Company, producers of an excellent marine paint, in Belleville, N.J. I don't see any of the '42 or '43 fellows often. I'm still at C.B.S. Electronics (formerly Hytron), division of Columbia Broadcasting, in Danvers, Mass., as director of industrial engineering. I have had an active two years as a national vice-president of the American Institute of Industrial Engineers (A.I.I.E.) and am a candidate for national board member of the A.I.I.E. this year."

Robert C. Snyder of Annapolis, Md., has been appointed chief of research for Maryland's department of economic development. He will guide the first major project of their economic research division which will be a comprehensive analysis of economic development data and services available from other Maryland state agencies as well as from co-operating private and federal agencies. Bob, who was a captain in the Corps of

Engineers during the war, has a broad background in economics and research, having more than 10 years experience in federal government agencies and his own research and consulting firms in the Washington and Annapolis areas.

While in Washington he also served as staff member or consultant for the Office of Naval Research, the Agricultural Activities Committee staff and the central staff of the first Hoover Commission, the Office of the Secretary of the Army, and later the Office of the Secretary of Defense. . . . Charlie Hathaway has been appointed assistant general manager of the Air Impeller Division of the Torrington Manufacturing Company, in Torrington, Conn. He will have overall responsibility for all engineering, sales and production operations of the Air Impeller Division.

There was a very interesting article in the *Boston Traveler* recently about the Wayne-George Corporation of Boston, manufacturers and developers of "shaft position encoders" which are used in the launching of missiles. Associated with this company is Sid Wingate, who is chief electronics engineer. . . . William L. Sammons, general sales manager of B-I-F-Industries, Inc., of Providence, R.I., was elected a vice-president of that company last winter. In this capacity he heads the company sales activities as conducted throughout the world. He joined B-I-F-Industries as assistant to the president in 1957 and was appointed general sales manager in May of 1959. Bill has a degree from Williams besides a bachelor's degree in Course VI-A and a master's degree in the same course from M.I.T. He is a member of the American Waterworks Association, the American Marketing Association and the Providence Chamber of Commerce. Bill and his wife, Rosanne, take an active part in community affairs and he is currently a member of the Barrington School Building Committee. They have two children, a son, William, and a daughter, Jane Marie.

To correct the record from a recent issue of *The Review*, where we goofed with regard to a certain change of address, I should like to include this note I received from Myron Shoffner: "To adjust the record: my wife and I, and two daughters, are now living on a farm near Freeport, Pa., about five miles from the city. We once lived near Kittanning, but the area became too crowded so we moved to the country. We have a beautiful spot in the foothills of the Alleghenies with a 20-mile vista and not a house to be seen. Our nearest neighbor is one-half mile over a hill. The nearest shopping center is 20 minutes by car." Myron's address is R.F.D. 1, Freeport, Pa.

We received a note from Rodrigo Botero, from Bogota, Colombia, with regard to our classmate Virgilio Barco. Virgilio, who is the Colombian Minister of Public Works, accompanied the Colombian President, Alberto Lleras Camargo on his official visit to the United States during the first week of April. . . . Change of addresses finds Bill Moulton now in Daytona Beach, Fla.; E. Frantz Kreider in Summit, N.J.; Eliot Payson in Englewood, Colo.; Dr. Bill Sullivan,

Jr., in Los Angeles, Calif.; and John Gunther now on Falcon Road in Guilford, Conn.

This is the last issue of the notes until November of this year. All of us secretaries join in wishing you all a happy summer and again extend our sincerest invitations to each and every one of you to call on us if you ever visit the cities in which we live during your vacations.—RICHARD M. FEINGOLD, Secretary, 10 North Main Street, West Hartford 7, Conn.; Assistant Secretaries: CHRISTIAN J. MATTHEW, Arthur D. Little, Inc., 314 Battery Street, San Francisco, Calif.; JOHN W. McDONOUGH, JR., 413 North Miami Street, Wabash, Ind.

'2-44

Since this is the last issue of this volume, I shall try to clean up all the various notes that I have had accumulating in the folder and should have taken care of.

I received a note belatedly that Richard V. Mulliken of Texas City, Texas, had been appointed a research specialist at Monsanto Chemical Company's plastics division plant at Texas City, after serving as a senior research chemist there. . . . Another note advises that Joseph J. Schaefer has been elected treasurer and a member of the Board of Directors of the Horn and Hardart Baking Company of Philadelphia. For those who are unfamiliar with Philadelphia, I am advised that Horn and Hardart serves more than 350,000 patrons daily in their cafeterias, restaurants, and retail shops. . . . A clipping from the Hudson, Mass., *Sun* states that Gardner E. Alden announced his candidacy for the office of planning board of the town of Southboro, Mass. He is with Bay State Abrasive Products Company in Westboro as senior engineer in the research and development department, and has been with Bay State Abrasives for the last 10 years.

There are several interesting address changes: Dr. Robert D. Arnold moved from Bethesda, Md., to Honolulu, Hawaii. We here in the East will be thinking of you, Bob, next winter! . . . Jim Lewis, Jr., moved from Maracaibo, Venezuela, to Aylesbury, England, which would indicate he can now order his schnapps in English rather than Spanish when he goes to the local pub. . . . Bill Ritchie has moved from Egypt, Mass., to Norwell, Mass. . . . and Ed Walker has moved from Rapid City, S.D., to Caracas, Venezuela, where he is working in geology.

One last note is that a number of you will no doubt be reading these notes before going on vacation. If you are anywhere near the Boston area, why don't you give your secretary a call? I will be very happy indeed to bring the rest of the class up to date on happenings and news you wish to report over the phone. Thus, the first notes in the next *Technology Review* issue can start off with a bang. In the meantime, have a terrific summer vacation, and I shall see you next Fall.—PAUL M. HEILMAN, Assistant Secretary, 131 Lindbergh Avenue, Needham, Mass.

Thanks to Herb Hansell's president's letter and his kind words on this column, the mail is beginning to pour in with interesting information on job changes, family additions, and so on, and also the beginning of statistics concerning how many will attend our reunion next year. Morry Chomitz of 7213 Mansfield Avenue, Philadelphia 38, Pa., writes a newsy letter which I will quote: "I yield to your impassioned plea for news. The following events are chronologically presented, and no inference should be drawn as to cause and effect. October—after 11 years, I left the Kuljian Corporation where I have been chief chemical engineer and joined Baldwin-Ehret-Hill, Inc., in a staff capacity. B-E-H is a recent merger of Baldwin-Hill of Trenton and Ehret Magnesia Manufacturing Company of Valley Forge. December—number three arrived, Jonathan Charles by name, making two jacks and a queen. February—a swift and unexpected turn of events vacated the plant manager's spot at Valley Forge. Since nature abhors a vacuum, I found myself drawn into the void. Pardon the cliché choice of words, but my new work is challenging, demanding, and a complete departure from my previous experience. For those unfamiliar with our sterling products, we manufacture thermal insulations, notably 85 per cent magnesia, calcium silicate, and sundry mineral wool products. Extend my commiseration to others who, like myself, have resigned their U.S.N.R. commissions in favor of balding, pot bellied, civilian apathy."

Another nice letter was received from Sterling Bushnell, whose home is at 1067 Sherwood Road, Muskegon, Mich. Again I take the liberty of quoting: "I have just finished reading your plea for news from classmates, so I will send you a little. I can sympathize very much with your position because I have recently undertaken the job of class correspondent for my class at prep school (Phillips Exeter Academy). People just don't respond as they ought to. I have recently changed jobs, and am now working for the Misco Precision Casting Company, in Whitehall and Muskegon. As the name implies we make precision castings of primarily gas turbine blades and vanes. Pratt and Whitney is our largest customer but we supply parts to all of the aircraft engine manufacturers."

"The method we use is based on the old lost-wax method of casting. It is greatly refined, of course, but the principle is age-old. I work in the engineering department of the company, and at Misco this means that I have more or less general responsibility for a particular group of parts. This responsibility includes procurement of tooling for the wax molds, the straightening and gauging of the finished casting, and continual checks on the dimensional correctness and stability of the casting. I work with production and quality personnel also, all with the object of obtaining a casting which measures within very tight blueprint tolerances. It is an extremely in-

teresting job because it is always different, and because I do cover so many phases of the manufacturing process."

"The family has been growing steadily and now includes two boys and two girls, ages ten, seven, four and one. We are eagerly awaiting the arrival of spring so that they can all get out of the house. There is still snow on the ground and this keeps them off the playground and me off the golf course. I was very much interested in the suggestion that the 1961 reunion be held in Bermuda. That isn't much farther from my house than is Cape Cod. Some of our class, of course, have seen Bermuda, courtesy of the U.S. Navy, but I certainly wouldn't mind seeing it again. Keep me informed of further details and I may be able to make it."

I spotted a familiar face in the financial pages of the *Boston Herald* and on second look it proved to be Roger Sonnabend. Roger still lives at 46 Malia Terrace, Chestnut Hill 67, Mass. The article mentioned his recent election as national vice-president of the Young Presidents Organization. Roger has also been made president of the hotel and motor hotel divisions of the Hotel Corporation of America. As this goes to press, I am recently in receipt of a questionnaire filled out by Roger which indicates a great number of activities with which Roger is busy.

A recent publication of the Aerojet General Corporation newspaper mentions that Commander Eric G. Newberg, Jr., has been appointed resident representative for the Bureau of Naval Weapons at Aerojet General's Sacramento, Calif., plants. Eric received his B.S. from Pratt Institute; his M.S. from M.I.T. in '46; was elected to Sigma Xi at M.I.T. in '45 and made *Who's Who in Engineering* in '54. . . . Another M.S. degree recipient in '46 is Dr. Robert B. Jacobs, who is with the Cryogenic Engineering Laboratory of the National Bureau of Standards in Boulder, Colo. Bob has developed a new approach for long distance pipeline transfer of liquefied gases such as hydrogen, oxygen and helium. . . . We often have the privilege of reporting on Dr. Thomas F. Malone's activities. Tom is director of research for the Travellers Insurance Company, Hartford, Conn. At the national meeting of the American Meteorological Society held at the National Academy of Science in Washington in April, Tom was chairman of the seminar which discussed severe storms.

Another clipping from the *Boston Herald* reports on the wedding in Dallas, Texas, of Alan D. Stone to Miss Marcia Gae Aaron in February. The Stones expect to make their home in Brockton, Mass. . . . Active in the Connecticut area in Alumni Fund raising are a number of our classmates. Angus N. MacDonald of 3 Devon Road, Green Farms, Conn., is general chairman for the Westport-Weston-Wilton area. Angus is a partner of Braxton and Company, a New York firm specializing in corporate mergers and acquisitions. . . . Dr. Roger Bart, Ledgebrook Road, Weston, Conn., is vice-chairman for his town. Roger is with the West Virginia Pulp and Paper Company in New York.

A belated notification received through the Alumni Fund Office reports the death of Samuel Schwartz, whose home was at 9503 Hale Place, Silver Spring, Md., in July, 1959. Sam started with our class in Course X. . . . Ned Tebbetts, special gifts chairman for our class, reports excellent progress on improvement in Alumni Fund donations for 1959-1960 over 1958-1959. Increase is about 50 per cent in dollars contributed which is considerably better than any other class graduating in the 1940-1949 period. Ned says that real credit belongs to the many metropolitan area chairmen all over the country, the names of whom were reported here a few months ago.

As of this writing 17 questionnaires have been received. Eight indicated they definitely would attend the reunion next year, six said no, one hoped so and two were maybe. Ideas for location ranged from the Boston area to Cape Cod or Nantucket, with a few enthusiastic for Bermuda. That is about all for this year. We'll be back in the fall with news of Bob Spoerl, Bill Becker, C. S. Lyon, Nick Grossman, Dave Sherrick, Jim Craig, and many other illustrious '46ers. Be sure to tune in, and of course the way to do that is to be sure you have remembered the Alumni Fund. Your contribution to the fund is your ticket to this deathless prose department. — JOHN A. MAYNARD, *Secretary*, 15 Cabot Street, Winchester, Mass.

'47

Your correspondent has been riding the aerial travel lanes for the last six weeks, and finally returned to the West Coast to get his suits pressed so that he can journey back to Cambridge for Alumni Day. Naturally, by the time this missive reaches the interested parties, 1947's 13th reunion will have gone by the boards; on reflection, however, it would seem that the 13th reunion, for our class, anyhow, would be as appropriate as, say, a 25th to any other. Remember, we were graduated on Friday the 13th. Just to get prepared for our 15th, your correspondent spent reunion weekend with the Class of 1945 at the Snow Inn.

At the National Packaging Show, held in Atlantic City early in April, Milt Robins stopped by the Kleen-Stik (that's my company!) booth, advising me he was on his way to the West Coast on another business trip; with him was his wife. Milt said that his aerosol-testing machine was selling nicely. . . . Bill Zimmerman '48 also stopped in to say hello. He's vice-president and general manager of Fasson Products, one of my competitors, located at Painesville, Ohio. While having dinner one evening at Hackney's Restaurant, I noticed Warren King '48 and Carroll Boyce '44 at the next table. They're both with McGraw-Hill Publications. Warren is managing editor of *Fleet Owner* magazine.

Peter Callejas has been transferred to head the Seattle, Wash., office of Stevens and Thompson and Metcalf and Eddy, consulting engineers. Pete previously had been with Metcalf and Eddy as supervising engineer, before their merger with

the West Coast concern. . . . John G. Holmes, II, has been appointed manager of the newly formed central sales region of Union Carbide Metals Company, a division of Union Carbide Corporation. This region will be headquartered in Cleveland, Ohio. Its function is to improve service to users of ferroalloys and alloying metals in the steel, iron and nonferrous metal industries. John moved to Cleveland from his prior post as assistant manager of the company's Pittsburgh division. . . . Ben G. Bromberg has been elected a vice-president of McDonnell Aircraft Corporation of St. Louis; he is presently chief missile engineer. . . . E. G. Dyett has been elected 1960 president of the National Noise Abatement Council, at their annual meeting; he is presently in charge of the instrument division of H. H. Scott, Inc.

Two of our class members have entered fields outside their undergraduate studies at M.I.T.; Dr. Peter P. Poulos, XVI, has been appointed scientific director of the Heart Institute of the United Hospitals of Newark, N.J. Pete was graduated from Cornell Medical School in 1952, and served a surgical residency at Bellevue Hospital in New York City. . . . Dr. Hyman W. Fisher, X, has recently put out his shingle in Livingston, N.J., in the practice of internal medicine; he took his last year of residency at Queens Hospital in Honolulu.

Recent speaking engagements by class members include Dr. John Truxal, who spoke at a systems symposium held at the Case Institute of Technology in Brooklyn. . . . Dr. Sam Mason, presently on the Institute Staff, chaired an afternoon session on active network concepts at a symposium held at Brooklyn Polytechnic Institute in April. . . . Dr. Gerhard Reethof, II, spoke at a University of Michigan session on the subject "Reliability—An Attribute of Every Design." Dr. Reethof is manager of engine controls analysis at General Electric's large jet engine plant near Cincinnati.

The following list is taken from recent records showing moves made by members of the class in the past months. In order that the readers may more easily find classmates in their particular areas, the list is by states, and then cities and names, all alphabetically. Should there be any errors or omissions, please contact your correspondent or the Institute. Alabama: Huntsville, John D. Ireland; California: Atherton, Paul M. Cook; Covina, James A. MacDonald, Jr.; Culver City, Dr. Max T. Weiss; Inglewood, Major Vincent S. Haneman, Jr.; Monterey, Lt. Commander Wayne E. Meyer; San Diego, Harry A. James, Leslie C. Merrill, and Joseph C. Proffitt; San Francisco, Captain Bruce K. Lloyd, Jr. (FPO); San Raphael, Dr. William Enkeboll and Richard V. Wagner; Santa Monica, Henry G. Rice; Saratoga, John A. Hugus; West Covina, Philip D. Jones; Woodland Hills, Richard L. Mela; Connecticut: New Canaan, Neil M. Blair; Stamford, Mitchell F. Keamy, Jr.; Delaware: Delaware City, Erich R. Westfield; Illinois: Crystal Lake, Morgan H. Cooper; Evanston, Dr. Loring G. Mitten; River Forest, Dr. Robert C. Drye; Wilmette, Davis S. Yablong;

Louisiana: Lake Charles, Kenneth D. Bair; Maryland: Bethesda, William Duncan; Rawlings, Donald P. Hug; Silver Spring, Sidney Shapiro; Massachusetts: Amherst, Professor Daniel Sobala; Arlington, Norman L. Daggett; Boston, Ralph M. H. Coburn; Burlington, Allyn R. Lumbert; Cambridge, Frederic J. Eppling and Professor Jerome Y. Lettvin (both at M.I.T.); Cohasset, Domenic M. Baccari; Lexington, Dr. Edward M. Bennett; South Hanover, Donald M. Anderson; Stoneham, Carlton E. Elliott; Waltham, Hrand Saxenian; Michigan: Ann Arbor, Dr. Gabriel Isakson; Birmingham, Douglas L. Schultz; Grand Rapids, Floyd J. Kreuze; New Baltimore, Worth H. Percival; Missouri: University City, Bert Lasko; New Jersey: Freehold, John C. Ripley; Newark, Peter P. Poulos; Paramus, Frank J. Anastasio; Princeton, Robert C. Clement and Kenneth H. Fischbeck; Springfield, John W. Kellett; Summit, Frederick W. Churchley, Jr.; Tenafly, George Brown; Westfield, R. Brooke Pietsch; New Mexico: Albuquerque, Col. Martin E. Sorte; Cloudercroft, Vergel E. Liles; New York: Ballston Lake, Francisco P. F. B. de Mello; Bronxville, John B. Sproul; Dewitt, Robert E. McBride; Far Rockaway, Clifford M. Gross; Flushing, John G. Martin; Hamburg, Horace W. Hardy, Jr.; Larchmont, Frederick F. Hamm; New York City, Dr. Harold L. Stolov, Captain George C. Duncan (FPO) and Commander Robert W. McNitt (FPO); Northport, Deane F. Flader; Schenectady, Rufus M. Franklin; Williamsville, Mrs. Cameron D. Postle; Ohio: Cincinnati, Dr. Gerhard Reethof; Columbus, Mrs. William Virgin; Wadsworth, Bertram J. Milleville; Wooster, Frederick G. Heuchling, Jr.; Youngstown, Louis E. Stark; Oklahoma: McAlester, William H. Lucero; Pennsylvania: Camp Hill, William R. B. Froehlich; Media, Merritt T. Cooke, Jr.; Philadelphia, Aaron S. Filler; Reading, Melvin M. Locke; Swarthmore, John B. Aaron, Ezra S. Krendel and Bernard Morrill; Villanova, Robert A. Lombard; Willow Grove, Martin D. Landau; Rhode Island: Warwick, Harlow H. White; Tennessee: Oak Ridge, Dr. Charles O. Smith; Texas: Corpus Christi, Professor Walter J. Grace, 3rd; Fort Worth, Mrs. Weston K. Norman; Vermont: Burlington, Alexander B. Ward, 2nd; Virginia: Arlington, Thomas C. Bazemore, Jr., and Lt. Colonel William L. Starnes, Jr.; McLean, Dr. Martin D. Schwartz; Newport News, Joseph D. Deal, Jr.; Virginia Beach, Captain Robert W. McNitt and Commander John W. Shuff, Jr.; Washington: Mercer Island, Latham H. Collins, Jr.; Canada: Toronto, Edward M. Peacock and Alan B. Extence; Brazil: Sao Paulo, Dr. Frank A. Ryan; Norway: Tonsberg, Robert S. Smith; Switzerland: Zurich, Eli Perry. — ARTHUR SCHWARTZ, *Secretary*, 8355 Blackburn Avenue, Los Angeles 48, Calif.

'48

My notes this month are very scarce; people are not being very co-operative about informing us of goings-on.

Francis Brown has a thriving concern in Beverly making graphite, nichrome, and stainless steel heaters as small as a postage stamp or as large as a ping-pong table. Francis graduated from Harvard Business School in 1954 and started the business shortly thereafter. . . . Bill Harris, Jr., executive director, Materials Advisory Board, National Academy of Science of the National Research Council in Washington, delivered a technical paper June 9 on "A Critical Comparison of Columbium with Other Materials for Missile, Aircraft, and Nuclear Applications." The occasion was a symposium of the Metallurgical Society of the A.I.M.E., Hudson-Mohawk section, at Lake George.

Elias J. Corey received the \$1,000 American Chemical Society award in pure chemistry in Cleveland in April. Elias is a chemistry professor at Harvard. . . . Isadore Candeub is president and planning director of one of the largest organizations in the country specializing in city planning and urban renewal consulting services. Candeub, Fleissig and Associates have headquarters in Newark and a regional office in Boston. . . . George Clifford was recently appointed manager of the Spinco Division of Beckman Instruments, Inc., in Palo Alto, Calif. George joined the company in 1955 as sales manager.

Dr. Sidney Lees was elected president and technical director of Instrument Research, Inc. . . . Of social interest was the recent wedding of Natalie Edelstein and Henry Gilbert. Henry is employed by the John W. Bolton Company of Lawrence as chief engineer. The couple will live in Stoneham. — RICHARD H. HARRIS, *Secretary*, 26 South Street, Grafton, Mass.

'49

A letter from John Goppelt (VI, Communication Option) leads off the column this month:

"I've enjoyed reading about The Technology Review. I thought I would do my share by passing on some information about myself. After M.I.T. I went through medical school at the University of Pennsylvania and then a residency in psychiatry at the Pennsylvania Hospital, in Philadelphia. I am now in private practice in Philadelphia. My wife is the former Martha Rowland. Until our son came along, in January, she taught English at Shipley, a girls' school in Bryn Mawr. We are presently living in an apartment in Ardmore." Thanks for writing, John. Success and happiness to you in a challenging profession.

P. J. Cambourelis, XV, writes care of the Alumni Fund that he is sales manager at the American Silver Company, Inc., division of Sherman Industries, Inc., Flushing 54, N.Y. The letterhead has an intriguing picture of an "electronically controlled Sendzimir mill for precision metal rolling" to point up an A.S.C. specialty. Thanks for the news, Pete. (This note supersedes the biographical sketch below.)

From the *Boston Herald* of March 27, an announcement of the marriage of James Power Gordon VIII, and Miss

Susanna Waldner, in New York. She is a Vassar graduate (1957). He is the possessor of a doctorate in physics from Columbia University. They are living in Chatham, N.J. No mention of his present employment. . . . From the *Herald Tribune* of March 6, an announcement of the marriage of Leonard Sullivan, Jr., XVI, and Miss Margo Blackley of Bankfoot, Perthshire, Scotland, in New York. She was graduated from Perth (Scotland) Academy and has been on the fashion staff of Burke-Amery, Inc., New York. He is an engineer with Grumman Aircraft Engineering Corporation.

In Hartford, Robert M. White (B.A., Harvard; M.S. and Sc.D., M.I.T.) has been appointed associate director of research at the Travellers Weather Research Center. He was formerly chief of the meteorological development laboratory in Boston and also did research at M.I.T.

E. A. Lewis, VIII, Electronic Research Directorate, Air Force Cambridge Research Center, Bedford, Mass., gave a paper on "Hyperbolic Direction Finding with Sferics of Trans-Atlantic Origin," at a "Symposium on Sferics and Thunderstorm Electricity" on April 30 at the 184th national meeting of the American Meteorological Society in Washington, D.C. . . . On April 8, the Chicago Section, Institute of Radio Engineers meeting included a paper on "The Design and Evaluation of Microwave Anechoic Chambers," by Dr. Elery F. Buckley (Ph.D., VI) chief electronic engineer, Emerson and Cuming, Inc., Canton, Mass., where he is engaged in developing specialized dielectric materials and applying them to microwave lenses and energy-absorbing devices. . . . Bertram F. Collins gave a talk in Worcester on March 14 entitled "The Red Coats Aren't Coming," at a luncheon meeting of Worcester Life Underwriters Association.

On April 21, the M.I.T. Club of Framingham held a ladies' night with a talk on the care and feeding of husbands. Attendees from the roster of 1949 included Frank Hulswit, George McQueen, Herbert Neitlich and Edward Pieper, accompanied by their spouses (spice?).

Here is the final installment of the 10th anniversary questionnaires, now more than a year out of date, since the present tense refers to spring 1959.

I hope you have enjoyed this survey of a sampling of your classmates. Were you included? If not let the rest of us know what you've been up to during the past 11 years.

Antonio Armenante X, lives at 216 Hempstead Road, Ridgewood, N.J. He is president of the Textile Commission House for Paterson Bleachery and Chemicals, Inc., Paterson, N.J. Married (Fay), three children, two boys seven and two; girl five. Owns home in suburbia. Has held two jobs since graduation.

Rodolfo F. Barrera lives at Hidalgo Point 1304, Monterrey, Mexico. He received a B.S. in Course X, Option B, and another B.S. in Course XV in 1950. He is assistant general manager for Cementos Mexicanos, S.A. Married (Dolores), three children, two boys five and a half and four and a half, girl two and a half. Rents home. Has held two jobs since graduation.

Pete Cambourelis, XV-A, lives at 90-11 35th Avenue, Jackson Heights, N.Y. He is in product development for Allied Chemical Corporation, co-ordinating chemical research with market research on new product processes or projects. Bachelor (hunting). Pets: dozen tropical fish. Rents apartment.

Stanley F. Collis lives at 2804 Holly Hill Drive, Lafayette, Ind. He received a B.S. in Course XV, Production, and took mathematics courses in Pittsburgh. He is a quality control engineer for the Aluminum Company of America, setting up statistical quality control procedures, designing experiments, and serving as statistical consultant to other engineers. Bachelor (hunting). Rents home in urbia.

Frank Darcy, XV-A, lives at 83 Knoll Street, Roslindale, Mass. He is sales engineer for Cannon Electric Company, handling sales and engineering work. Bachelor (hunting). Rents home in urbia. Has held two jobs since graduation.

Richard B. Davidson, VI-4, lives at 25 Rentell Road, Hamden, Conn. He is assistant to the general manager of MB Electronics, currently on a special project to standardize production and engineering. Had been plant manager. Married (Marcella), children six and two. Pet: cat. Owns home in suburbia.

Noel Davis, II, lives at 107 Laurel Road, Chagrin Falls, Ohio. He is president of Integrated Development and Manufacturing, handling general administration, product design, sales, janitorial service. He comments that additional business courses would be helpful if he were to continue with his formal education. Married (Mary), children, two girls nine and three, boy five. Owns home in suburbia. Has held two jobs since graduation.

Aldo C. I. DiMascio, II, lives at 88 School Street, Watertown, Mass. He is an industrial engineer for Atlantic Gelatin Division of General Foods Corporation, handling methods and equipment development, and economic evaluation of same, materials handling, work measurement, product and process cost determinations, line responsibility for warehousing (raw materials and finished goods) and stores (production and maintenance supplied). Married (Ruth). Rents apartment in urbia. Has held one job since graduation.

Earl W. Eames, Jr., XV-B, lives at 113 Commonwealth Avenue, Boston, Mass. He is president of General Management Associates, Inc.; general administration and management consulting are his duties. He is married (Anyes), two children, girl three and a half, boy one and a half. Rents apartment in urbia. Has held three jobs since graduation.

Ronald L. Greene lives at 1440 Maple Street, Oak Park, Ill. He received a B.S. in Course XV, and took further courses in metallurgy for another year. He is assistant production manager for Kordite Corporation, developing markets for automatic packaging with polyolefin films, assisting in development of marketing organization to capture above markets. Married (Ginny). Rents apartment in suburbia. Has held four jobs since graduation.

George B. Gurley, Jr., XV lives at 35 Ellsworth Street, Springvale, Maine. He is chief engineer for Pioneer Plastics, handling quality control, product development and technical service. Married (Ginny), children, two girls three and one and a half, boy three months. Pet: dog. Owns home in suburbia. Has held five jobs since graduation.

O. Summers Hagerman, Jr. XV, lives at 8519 Pringle Drive, Cincinnati 31, Ohio. He is an industrial engineer for Formica Corporation, subsidiary of American Cyanamid. He does factory methods work, production control, inventories, scheduling, and procedures. Married (Jeannette), three boys six, two and a half, one and a half. Owns home in suburbia.

M. J. Halle, X, lives at 26 Woodcrest Drive, Wakefield, Mass. He is an advanced development engineer for Sylvania, working on transistor development. Married (Helen), two boys five and three. Pets: two turtles. Owns home in suburbia. Has held one job since graduation.

H. E. Keene (Hal), X, lives at 145 East Glenwood Drive, Birmingham, Ala. He is sales engineer for Improved Mech. Co., handling pulp mill equipment. Married (Pat), two girls eight and four. Owns home in suburbia. Has held three jobs since graduation.

Francis J. McCarthy lives at 27 Union Street, Holbrook, Mass. He received a B.S. in Course X and M.A. from Harvard in 1950, and an M.D. from Tufts in 1955. He is a self-employed physician in the general practice of medicine. Bachelor (hunting). Rents apartment in suburbia. Has held five jobs since graduation.

Robert L. (Mickey) McConaughy lives at 1409 Exeter Street, Baldwin, N.Y. He received a B.S. in Course VI, Option 4, an M.S. in applied mathematics from Adelphi College (1959) and studied nuclear engineering at Penn State University and Argonne National Lab (known as International School of Nuclear Science and Engineering). He is group leader for avionics advanced design, Grumman Aircraft Engineering Corporation. He is in charge of all electrical and electronic systems for advanced studies and proposals on missile, space and nuclear powered vehicles. Married (Justine), two girls five and two. Owns home in suburbia. Has held one job since graduation.

Harrison S. Horn (Hap) lives at 3470 Janice Way, Palo Alto, Calif. He received a B.S. in Course VI, option 3, and studied engineering science at Stanford. He is staff engineer for Link Aviation, Inc., duties consisting of engineering of electronic circuits and systems, internal consultant, mixed analog and digital computers. Married (Virginia), one girl five. Pets: two cats. Owns home in suburbia. —FRANK T. HULSWIT, *Secretary*, 14 Nadine Road, Saxonville, Mass.

'52

Here it is summer again, last column of the year, and so many of you have filled out the questionnaire we sent out

last year that there just isn't space to report them all now, so we'll hold them over until fall. Incidentally, I've tried keeping them on a first-in, first-out basis, and if any news you sent in didn't get reported this year, drop me a line for next fall.

Ted Uhler writes from Dhahran, Saudi Arabia, that he and his wife and daughters (ages one and four) and son (age two) are living there, where he is technical assistance engineer, administering Aramco's technical assistance program (similar to but smaller than ECA). . . . And from Dadar, Bombay, India, Professor Rajaram D. Godbole writes that he is head of the physics department at Ramnarain Ruia College and that since October, 1958, he has been chairman of the board of studies in physics and a member of the academic council, at Bombay University. . . . Also in India, but in Bangalore, is Arun Prasad, who is a senior technical officer in charge of design and development of turbojet engines for the Ministry of Defense. He mentions that he sees K. K. Gupta and M. S. Patwak'53.

George A. Skiadaressis is in Athens working for the Organization for Labour Housing, as head of the design department, and is also carrying on a private practice in architecture and planning. . . . Rounding off the far-away places, Brian Ashton is in Capetown, South Africa, as technical director for the Castle Wine and Brandy Company, Ltd., working mainly on the production of brandy and potable spirits. He announces a son, Glenn Pierre, born in 1956 in London. . . . Andy Wessel is engaged in running Weswico, distributors of Johnson Outboard Motors, in Oslo, Norway. He mentions that sales increased 55 per cent in 1959 and that they hope to repeat the performance in 1960. The Wessels have young Andy to look after, aged two.

Meanwhile, back in the States, Ralph J. Preiss writes that he is with IBM in Poughkeepsie, as manager of advanced design automation, and is a member of the Poughkeepsie High School faculty aiding "science-prone students" in investigating topics of their choice one evening a week. He and his wife, Marcia, and daughters, Robin and Erica, moved into their own self-designed home last winter. All this and still time for a two-week course at M.I.T. boning up on "Finite and Infinite State Machines." He mentions that Ben Agusta and Paul Seever are both IBM Poughkeepsies, too. . . . H. Richard Johnson is vice-president at Watkins Johnson Company, engaged in research and development and manufacture of microwave electron devices, including tubes, backward wave amplifiers, helitrons, and so on. He contributed "Microwaves in the Space Age" to Transactions of the Institute of Radio Engineers, January, 1960. He states that his company is one which will match employee contributions to colleges up to \$100 per year.

Which reminds me, did you contribute this year—yes, you!—to the Alumni Fund? . . . John J. Fritts is with the White Pine Copper Company in White Pine, Mich., as resident geologist doing quality control work in a 16,000-ton/day

mine. He says he has seen only one classmate since graduation—Phil Hallof who is with McPhor Geophysics in Toronto. . . . Stanley Solomon is with Raytheon in Newton as a senior engineer in semiconductor development work, and gave a paper at the Electro Chemical Society meeting in Columbus, Ohio, last year. . . . Edward Dickerman was with National Lead Company, Inc., in Monticello, Utah, as a technical supervisor in charge of the metallurgical and analytical chemical laboratories and plant metallurgy, producing uranium yellow cake concentrate, and is now with Vanadium Corporation of America in Durango, Colo., in a similar position. He writes that Parker Gay is in Lima, Peru, working for Marcona Mining Company (division of Utah Construction Company) doing magnetometer surveys. Also, Don Brown is in Patchogue, N.Y., with Brookhaven National Labs.

Robert H. Norton is assistant general manager of the Associated Designers in Cambridge. . . . Takashi Mitsutomi is in Long Beach, Calif., working for Antennetics in Downey, Calif., as a group leader in charge of the controls group, research and development of inertial navigation system, and has given two papers to the Institute of Radio Engineers in 1958 and 1959. . . . Paul N. Ries is with Procter and Gamble in Cincinnati as a statistical consultant to the market research department. He is a member of the M.I.T. Educational Council.

Lew Crump is in Columbus, Ohio, with Alden E. Stilson and Associates, "currently programming some highway and bridge design procedure for computers, but the real job is highway planning and preliminary design." He was married in 1956 to Doris Howe, and a son, Bruce, was born, December, 1958. . . . Manny Rotenberg is an assistant professor of physics at the University of Chicago, and mentions that Charles Schwartz is assistant professor of physics at Stanford, Carl Shiffman is with the National Bureau of Standards, and that Gerry Rothberg is teaching at Rutgers. . . . Victor Horlick is at Sperry Gyroscope Company on Lake Success, N.Y., as a staff administrative assistant, after receiving his M.B.A. from Stanford in June, 1956. . . . Rodney Frost is in Corning, N.Y., with Corning Glass as a research engineer in fusion-cast refractories and also is president of the Corning Junior Chamber of Commerce. . . . Francis Zuccardy has been in New London, Conn., as chief engineer for Webb and Knapp Marine Corporation in Stratford, and is now chief engineer for the 600-room Freedomland Inn Motel in the Bronx. He received his M.S. in engineering from Yale last June with a scholarship award.

Ed Remmers is in Pearl River, N.Y., with Lederle Laboratories, division of American Cyanamid Company, as a group leader in exploratory pharmaceutical chemistry, working on new antibiotic formulations giving elevated serum levels. Ed holds his Sc.D. from M.I.T. in biochemical engineering in addition to his M.S. from M.I.T. in industrial management. . . . John J. Dieckmann is in Bergenfield, N.J., as assistant to the president of Jet Heet, Inc., in Englewood,

N.J. John married Janet Sandholm in 1957 and they have one child, Sharon. . . . George Bradley is with the Bridgeport Brass Company in Bridgeport as superintendent of process engineering. . . . Charles A. Honigsberg is still with M. W. Kellogg in New York City as a design engineer for petroleum, chemical, and nuclear process equipment. He was co-author of a paper presented in Houston at the September, 1959, American Society of Mechanical Engineers Petroleum Conference: "Structural Verification of Pressure Equipment." . . . Bill Kovacik is studying at Carnegie Tech in Pittsburgh, working on his doctoral thesis in nuclear physics (pion-proton scattering). He married Mary Jane Reich in 1954 and has two children. . . . Charles Beckmann is a captain in the U.S.A.F. Medical Corps at Olmsted Base in Middletown, Pa., as physician and deputy surgeon, and deputy commander 2843rd dispensary in the regular Air Force, and planning to do research in space medicine towards an M.P.H. Degree.

Omar Wing, as assistant professor in electrical engineering at Columbia, received his doctorate in engineering science from Columbia, June, 1959. He presented a paper at the National Electronics Conference in October. . . . He mentions William C. Jones at Bell Labs, and George Meyers at Bell Labs who just received his doctorate from Columbia. . . . Dick Prugh is with DuPont in Pompton Lakes, N.J., as an explosives engineer, determining characteristics of explosives and propellants and their use in blasting caps. He is studying for his M.S. in chemical engineering at Stevens Institute of Technology in Hoboken. He is also a trustee for the Class of 1948 at Admiral Farragut Academy. He was married in January, 1958, in St. George, Bermuda, to Jean Challis of Oxshott, Surrey, England. . . . Andrew Ferenz is with the Army Engineers in Philadelphia, Pa., as chief, quality control of construction at Fort Dix, McGuire AFB, Dover AFB, Torkanna Signal Depot, Nike sites, and so forth. He mentions working on a paper discussing excellent strength and workability results of concrete airfield paving at McGuire using blast furnace slag as concrete aggregate. (Whew!)

George B. Seager, Jr., is teaching math and physics at Bishop's College School, a boys' boarding school, in Lennoxville, Quebec. He is enrolled summers at Harvard in the doctoral education program. . . . Robert E. McCord is at Penn State University as director of continuing education in engineering. Bob was married to Nancy Adams in 1958 and mentions that he sees Albert Jacobson who is associate dean of the College of Engineering and Architecture at Penn State. Al writes that this is one of the largest engineering schools in the country, with 4,500 students and more than 400 faculty members. . . . Leonard Herzog is a professor in nuclear geophysics at Penn State and also president of Nuclide Analysis Associates in State College, Pa. . . . Darrell Frohrib writes from St. Paul, Minn., that he has assumed a lectureship in dynamics, shock, and vibration at the University of Minnesota, and is consulting at Rem-Rand Univac in St. Paul.

Stephen Kline is an associate professor of mechanical engineering and also supervisor of research in thermodynamics and internal flow. He says that he is the author of some 35 technical reports and papers, and, as mentioned before in *The Review*, editor of the McGraw-Hill series on mechanical engineering and winner of the American Society of Mechanical Engineers' Melville Medal in 1959. Any other authors in this class? Steve also announces the birth of Carolyn Roberta Kline in January, 1958. . . . Kenneth Gordon is at the University of Michigan as an associate professor of chemical engineering and with two others, presented a paper on "A Scintillation Method for Determining Liquid-Liquid Interfacial Areas," before the American Institute of Chemical Engineers in December, 1959, in San Francisco.

Sundaresan Ramachandran is supervisory research metallurgist with Allegheny Ludlum Steel Corporation in Brackinridge, Pa. . . . John Mello is with McDonnell Aircraft in St. Louis, Mo., as a senior group engineer in charge of super talos aerodynamics group. . . . Received a nice note from Newton Shanbrom who is secretary for 1954-Grad, and in case you readers do not browse further in *The Review*, Newt is still with Turner Construction Company in Columbus, Ohio, as a construction engineer supervising the construction of electroplating facilities in the new Western Electric Plant. Newt is a registered professional engineer in New York State. He was married in 1953 to Phyllis Eicher of New York City, and the Shanbroms have two children, Eric (age four) and Marcy (age two). . . . Herbert Paul Kagen is an assistant professor of chemistry at the Detroit Institute of Technology and has authored various papers.

Paul Lux is in St. Louis with David Sherman Corporation as managing officer and secretary treasurer. They are rectifiers and bottlers of wine and liquor, and manufacturers of vodka. Paul married Ann Sherman in Kansas City, Mo., in 1955, and they have two children. He mentions seeing Art Auer, M.D., in residency at the Veterans Administration Hospital in St. Louis. . . . Joel Ekstrom is in Baltimore, Md., with Westinghouse as a senior engineer, network synthesis section. Joel received his M.S. in electrical engineering at Johns Hopkins University in 1958, and gave a paper at the Institute of Radio Engineers convention in 1959. Joel mentions Allen Pipkin being at the University of Maryland, department of fluid dynamics and applied mathematics. . . . Al Hofstatter is in San Diego with Ryan Aeronautical Company as assistant chief metallurgist and is also secretary of the American Society for Metals, San Diego chapter. He mentions locating his long lost roommate, Phil Crimmins, who is working for Aerojet in Sacramento.

Also in California, in San Leandro, is Edouard C. Thys who is general manager of Precision Founders, Inc., an investment casting operation. . . . Dave Eissenberg is in Oak Ridge at the National Laboratory as a development engineer for a thermal breeder reactor program, after spending three years as a naval officer in Brooklyn and Panama.

. . . Tom B. Pearson is with the general atomic division of General Dynamics Corporation in San Diego, Calif., as a marine nuclear engineer associated with a maritime gas-cooled reactor project. . . . Carleton Scott is in Pomona, Calif., as a research section leader for the Union Oil Company research center in Brea, Calif. He has given several papers and holds patents on organophosphorus chemistry pesticides and hydrocarbon separations, and is chairman of the San Geronio section of the American Chemical Society. He mentions that Robert Mosely is with Shell Development in Emeryville, Calif., and A. J. DiMilo '53 at Aero-Jet in Sacramento.

Sheldon Thorpe is in Cincinnati, Ohio, with Procter and Gamble as production co-ordinator, toilet goods division, and is "quite involved with the reorganization of production and inventory control systems as well as budgetary control problems." And I quote further: "Would enjoy hearing from anyone in similar work!" Sheldon mentions seeing Howie Mills who's very busy at P & G soap product development, and Bill Horner in P & G packaging development division. . . . Henry Inouye is with Union Carbide Nuclear Company at Oak Ridge as a metallurgist working on materials problems associated with the development of power reactors and is chairman of the Oak Ridge chapter, American Society for Metals. . . . Henry Sandmeier is with the Argonne National Laboratory in Lemont, Ill., as an associate physicist, reactor engineering division. He obtained his Ph.D. in physics at the Swiss Federal Institute of Technology in Zurich on leave of absence from the lab. He has published two papers in the *Nuclear Science and Engineering Journal*.

And so we close this column for the year. Thanks again for your support in sending news in, and comments have been so favorable concerning the information form that we hope to do the same every year to help keep in touch. And thanks to Jim Margolis who, as you may know, is secretary of the M.I.T. Club of New York, and is no longer assistant secretary of '52, two columns being too much to work on. I'm still with Sigourney Manufacturing Corporation, South Acton, vacuum metals in investment casting, as vice-president; and please note the change of street number due to the Acton town fathers' renumbering scheme.—DANA M. FERGUSON, Secretary, 242 Great Road, Acton, Mass.

'53

Summer has arrived *even in Boston*, so your poor ole class notes writer is looking forward to a couple of months of comparative peace and quiet (i.e., no class notes and no students). However, if you are in town please drop by Tech and at least say hello.

Don Gilbertson buzzed by a week ago. Was in the midst of job hunting; most recently he was working for Remington Rand as a methods engineer and prior to that was with North American Aviation. Just to make life interesting, though,

he has been serving as assistant secretary of the M.I.T. Club of Southern California (where he lives . . . still single), and has been working for his M.B.A. at U.C.L.A. Don was able to partake of a four-year trip in Europe and Asia after graduation; was in 14 countries, though two of the four years were spent in India and Pakistan. . . . Mark Schupack was promoted to assistant professor in the department of economics at Brown University. I understand that he may have received his Ph.D. this June as well. . . . Chuck Kaplan recently passed the Massachusetts state bar exam. He received his law degree from George Washington University (with honors) in 1959, and served on the corps of examiners of the U.S. Patent Office. He presently serves as a patent lawyer with General Electric (in the power and medium transformer department) at Pittsfield, Mass.

The engagement of Mike Levy to Carol Bomeisler of New York was announced recently; marriage follows shortly. Mike, since graduation, has completed his service tour with the Corps of Engineers as a 1st lieutenant, and his fiancée graduates from the Columbia School of General Studies this year. . . . Richard Wengraf ('53-G) recently was appointed head of the City Planning Department of New Bedford, Mass. This department was created this year and will be formed under his supervision. Since graduation, Richard has served as a planner in New City, N.Y., and later Rye, N.Y.; in the latter position, he was serving as resident planner for the firm of Adams, Howard and Greeley. He is a licensed professional engineer in the State of New York and is a member of the American Institute of City Planners and the American Society of Civil Engineers. . . . Jerome Tiemann, who completed his doctorate at Stanford and is now working in Schenectady, N.Y., for General Electric, has been awarded a Certificate of Excellence by the GE Research Laboratory. It was presented at the Third Annual Miniaturization Awards Dinner in New York this March, and was made in recognition of Jerome's contribution to the development of the tunnel diode to a point where it can now find widespread use as an electronic component.

David Finkelstein, who received his Ph.D. from Tech in '53, has been named Young Men's Philanthropic League Professor of Physics at the Graduate School of Mathematical Sciences of Yeshiva University, New York City. He joins the Yeshiva University faculty this fall and will teach a full program in theoretical physics. Since graduation, he has served on the faculty at Stevens Institute of Technology, and has been responsible for conceiving and developing the "Megatron," a machine which studies new principles of high-speed acceleration in the area of high energy physics. Also, he has been a research associate at New York University, and a visiting scientist for the Atomic Energy Commission. In 1958, he received a Ford Foundation fellowship to teach in Switzerland, where he also served as scientific editor for the United Nations. And, he and his wife Helene have two children and are living in Hoboken, N.J.

The class notes forms which were included in Paul Shepherd's last letter are beginning to roll in. Unfortunately, I didn't have time to compile them for this issue of *The Technology Review*. However, the 1960 fall notes will begin with a re-cap of this information — so don't despair; your efforts will not be neglected. Many thanks to those of you who returned them and to those of you who will return them this summer. . . . Have a good summer. — MARTIN WOHL, *Secretary*, Room 1-131, M.I.T., Cambridge, Mass.

'54

This past year has not, I'm afraid, been distinguished by any regularity in the appearance of this column. We all hope, however, that next year will be better; your peripatetic secretary has ceased wandering for the nonce, and is reasonably well settled in Virginia. So, I should be able to receive and dispense the news with a little more consistency. All of you out there in Readerland can, of course, help considerably by dragging out a pencil and sending me a few scribbles about your latest escapades.

Included in the dribble of scribble which has managed to trickle to us recently is a card from Alex Dreyfoos. Alex allows as how he has joined IBM's advance systems development division, after spending a year and a half with Technicolor's New York amateur film processing division. Alex, his wife Joan, and their two children are living in Portchester, N.Y. . . . Art Jacob has acquired a bachelor of laws degree from George Washington University, and is now in the process of hanging up his shingle in New Jersey. Art left the Washington area about two weeks before we arrived, but while he was here, he did his usual thorough and competent job helping us get an apartment lined up so it would be ready when we got here. Once again, Marcia and I would like to say thanks, Art.

Everybody has, by now, undoubtedly heard the results of our elections last June, and is aware of the fact that Bob Anslow and Chuck Masison are president and vice-president, respectively, of the class. Most of us are also probably attuned to the fact that our former leader, Dean Jacoby, is our class agent. On the other hand, probably very few of you know about the other members of the class who hold various offices in the Alumni organization. We shall herewith attempt to correct this situation by listing these hard-working souls and their official duties. We should first note that Bob Anslow is not only our president, but also our representative on the Alumni Council, where he is a member of the personnel committee. Chuck Masison also is doing double duty, being an associate of the Alumni Council. Anna Bailey is the recording secretary for the M.I.T. Women's Association. Mariano Avelado is the secretary of the M.I.T. Club of Venezuela. Dave Leslie is the secretary of the M.I.T. Club of South Florida, and is an educational council

member in Miami Beach. Charlie Riley is secretary of the M.I.T. Club of Orlando (Fla.). Gene Leary is secretary of the M.I.T. Club of Schenectady. D. J. Athan is assistant secretary of the M.I.T. Club of Central Florida. Jerry Carpenter is an educational council representative in Norfolk, Va.

We close out this year's rather thin set of class notes with a personal item. Marcia and I became parents for the first time on April 3, producing 7 pounds, 13.5 ounces of boy, hereafter to be known as Edwin George, III. At the moment, he is demanding attention in a loud voice, so we hastily close the column for another year. — EDWIN G. EIGEL, JR., *Secretary*, 321 North Thomas Street, Arlington 3, Va.

'56

Here we are at the close of another Alumni year and I am cleaning out the last tidbits of information. In June, 1959, Meyer Barash received his master's from New York University after studying in a special center at the Bell Laboratories where he is also employed. . . . Gerald Diamond married Marcia Lee Paul of Chestnut Hill in February. Gerald has been in the army in Europe but has returned to civilian life. . . . Jonathan Hathaway wed Luise Hertrich of Ebermergen, Bavaria, Germany, in Geneva, Switzerland, in March. Jon has completed work for his master's in economics at the University of Michigan. . . . Alex Koso wed Edith Leavis of Somerville last December. Robert Mades wed Marilyn Lee Braverman of Newton Center in January.

In recent postal cards Luigi Cicolani is reported with N.A.S.A., Ames Research Center, Moffett Field, Calif. . . . Alex Daniels writes that he wed Janet Natalie Friedman in 1957 and has a daughter, Hilary Fran, born in December, 1958. He is working in the missile division of the Ford Instrument Company of Sperry Rand and received his master's from Columbia in June. . . . Guy and Lee Spencer became parents of a daughter, Cheryl Ann, on April 14 at Fort Worth. . . . John Gill has joined our group at the Harvard Business School. . . . George Luhrmann is with the civilian ranks again and will be employed at Wright-Patterson for a year.

Get your reservation in now for the fifth reunion and avoid the last-minute rush. Write Bob Malster at 49 Elsinore Street, Concord, Mass. Bob might also have some tips on Polaroid since I believe he was connected with their annual meeting. — BRUCE B. BREDEHOFT, *Secretary*, 1528 Dial Court, Springfield, Ill.; M. PHILIP BRYDEN, *Assistant Secretary*, 3684 McTavish Street, Montreal 2, P.Q., Canada.

'57

Jim Chorak writes in part as follows: "After marrying Gwenn Nelson of the Student Aid Office at M.I.T., I was called

into the Air Force and stationed at Curtiss Wright in Caldwell, N.J., at the plant residency. One year later, June, 1958, we (including my now two-year-old daughter, Miscelle Lynn) headed for a new assignment in Georgia at Robbins Air Force Base. With seven months off for good behavior, I located my present job with Hughes as Head, Small Business Administration, Corporate General Office.

"We have seen many Tech men recently. Vern Porter, XV, is a proud father as of February 14, 1960. He is an industrial engineer at the Colorado Fuel and Iron Works at Pueblo, Colo., and is working on a new mill. . . . Brooke Anderson, X, was here in Los Angeles a few months ago and spent three days with us. He is with Sandia Corporation in Albuquerque, N.M., as a plastics engineer. . . . Court Ross, XIV-A, is in Los Angeles with Westinghouse. . . . Dick Givan, VI, is here with Consolidated Systems, and Dick Naylor, VI, is also in the Hughes family, at Edwards, working on flight testing of fire control systems.

"I had lunch recently with Frank Ching (U.S. Air Force Ballistic Missile Center), Dick Bruce, Jack Gibson and Dick Adams, all of whom are at the Space Technology Labs. . . . Saw Jack Currie, I, in Trenton in January. He is helping to construct a power plant with United Engineers and Construction. . . . Harry John, XV, is at the Wharton School of Business and is working on a Ph.D. in economics. . . . George Myer, XVI, stopped by our place in Georgia a few months ago. He is a world traveler for the Air Force, co-ordinating things for Oklahoma City Air Materiel Area. . . . Dave Clunies, Brian O'Kane, Deane Kihara and Ed Hasselmann (whom I saw in Dayton about a year ago) are just out of the Air Force. . . . Sam MacIntosh, XVI, is with Chance Vought in Dallas. . . . Dave De Vicq, I, Lieutenant jg, U.S. Naval Reserve, is in Bermuda with the Seabees, and Steve Hawkins, I, also with the Seabees, is in Okinawa."

Arthur Aznavorian is at Yale in the department of industrial administration and expects to get his M.S. in February of next year. After graduation he spent some time as a computer methods planner at Western Electric in North Andover, Mass. . . . Both Sidney Borison and E. Alan Phillips have received National Science Foundation fellowships for their next year's study at Tech. . . . Stan Kroder was recently appointed a methods analyst in the finance and procedures department at IBM. Before joining IBM in July, 1959, as an assistant mathematics programmer, Stan studied for his master's in operations research at Case Institute of Technology. . . . Charles Snyder has been promoted to assistant research chemical engineer in Humble Oil and Refining Company's research and development division at Baytown, Texas. He is engaged in process development studies in the petro-chemical field. . . . Ricardo Gonzalez has been assisting in the design and construction of fish facilities for a hydroelectric project at Washington State University. . . . Maynard N. Toussaint is completing requirements for his Ph.D. at Tech. During the next academic year he will undertake an appointment to the

School of Business Administration at the University of Michigan.

A second son, James Francis, has been born to John and Connie Morris. . . . A July wedding is planned by Dick Bohlen and Gwendolyn Anne Beran. . . . Dick Williamson, at Tech's Instrumentation Lab, and Mary Killoran, a nursing teacher at New England Baptist Hospital, have recently become engaged and have announced a fall wedding. —ALAN M. MAY, *Secretary*, 525 East 81st Street, New York 28, N.Y.; MARTIN R. FORSBERG, *Assistant Secretary*, 11 Scottsfield Road, Allston 34, Mass.

'59

This concludes the 1959-60 volume of *The Technology Review*. I am now in the process of taking a nice summer vacation. Remember, during the summer months drop a line to Johnny McElroy, 15 Crocker Street, Rockville Centre, N.Y. John will handle the first issues of the 1960-61 *Review*.

Received quite a bit of news about class members via the grapevine recently. Wish you all would take the time to drop a line about yourself and any fellow graduates you are still in touch with. Joe Hendren's wife had a baby in April. Best of luck to the three of you! . . . Don Tyra has already received his master's degree from the University of Ohio. He now is working with Martin in Orlando, Fla. . . . Al Beard, I believe, also is working with Martin. . . . And Dave Packer is getting married somewhere in the Midwest, sometime this summer! Since I don't know the date, we'll wish them our best whether they're married or not by now. Write, Dave.

Dick Sampson just received a letter from Adul Pinsuvana. Adul writes: "I am working as a pilot officer in the Directorate. I am getting \$80 a month. . . . I am very busy being a soldier, teacher, and playboy. Give my regards to all the fellows." . . . Hope you are having an enjoyable summer, whether you are working, soldiering, or playing. See you in a few months, so stay active. —ROBERT A. MUH, *Secretary*, 8 Merrivale Road, Great Neck, N.Y.

'60

Here is the first of what your secretary hopes will be an interesting series of class articles. This column will appear in each issue — that is if you are good enough to keep the news rolling in. I hope you all contribute to the Alumni Fund in order that you may receive *The Technology Review*. Any contribution, no matter how small, entitles you to all the issues for the year. It seems that many of our classmates

Sloan Fellows

The 1959-60 Sloan Fellows left Boston on May 20 for the first Sloan Fellowship European Management and Technical visit, with their return scheduled for June 6. Accompanying the Sloan Fellows were Dean Howard W. Johnson of the School of Industrial Management, Professor Charles P. Kindleberger of the Department of Economics, Mr. John M. Wynne, Director of the Executive Development Programs, and other members of the administrative staff.

The decision to publish an up-to-date directory of Sloan Fellows has unearthed a number of changes in assignment not previously reported: *Herman A. Enemark '42* is now director of personnel administration, Gladding, McBean & Company, in Los Angeles. . . . *Wayne L. Hortitz '53* has moved to the new position of industrial relations director of Matson Navigation Company, San Francisco. . . . *John L. Kelly '58* has recently been appointed assistant regional manager, Southwestern Region, Continental Oil Company, Fort Worth, Texas. . . . *Robert A. Kraay '57* has moved to the new assignment of su-

perintendent, Manufacturing Engineering, Western Electric Company, Allentown, Pa.; and *Philip E. Hugin '54* has been advanced to assistant engineer of manufacturing of the Western Electric Company. . . . *Everard M. Lester '33* is now director of manufacturing, Government Products Group for American Machine and Foundry Company, New York City. . . . *Carroll M. Martenson '54* has become president of the Hydraulic Research and Manufacturing Company of Burbank, Calif.

The United States Air Force moved Lt. Colonel *Whitfield A. Martin '56*, U.S.A.F., on assignment to their War College at Maxwell Air Force Base, Alabama. . . . *John T. Pettit '58* is the director of industrial dynamics, Hughes Aircraft Company, Culver City, Calif. . . . *E. Hanes Rogers '56* has shifted to W. R. Bean and Son, Atlanta, as production planner and purchasing agent. . . . *Paul F. Salipante '57* has gone abroad as directeur-general of Scott and Williams, S.A., Bruges, Belgium. . . . *Donald W. Steel '53* is now president of Nuclear Ohio, Inc., in Cleveland. . . . *Willard B. Strobel '57* is manager of the Central Computer Department, Continental Oil Company, Ponca City, Okla. . . . *Dixon E. Wansbury '55* is moving to San Francisco as the new secretary of General Employees Benefit Committee, reporting to Vice-president-Personnel of Pacific Telephone and Telegraph Company. —JOHN M. WYNNE, Room 52-455, M.I.T.

have gotten married since graduation or plan to do so shortly. Walter Godchaux and Martha Miller, a sophomore at Wellesley, were reported to be planning a June wedding. . . . Harold Holzer and Miss Connie Manning are to marry August 24. Connie is from Needham and appeared in this year's Tech Show. Harold will be giving Uncle Sam six months of his time and then working for General Electric.

Chris Ward married Miss Gretchen Van de Kamp June 18 in Pasadena. Chris is working for Kaiser Steel in Fontana, Calif., as an industrial engineer. . . . Don de Reynier and Miss Joan LaMens of Simmons were married June 14. Don will be in the Navy for the next two years. . . . Bob Esterling married Miss Joan Norris June 18. Bob will be at the University of California at Berkeley this fall as a teaching assistant. . . . Roger Baust will be married this August to Miss Judith Williams of Boston University. Roger will be back in graduate school this fall at Tech. . . . Mitch Dittmann and Miss Susan Shapiro were married on June 11. Mitch is now working for Westinghouse in their training program.

John White and Miss Patricia Aida of Staten Island, N.Y., were married on June 11. John is in the civil engineer corps of the Navy and is stationed at Port Huene, Calif. . . . Fritz Frink writes that

he is planning to get married on August 6 — doesn't say to whom though. He will be working in Washington until October, and then is headed for the Army. June 11 was also the date of the marriage of Doug Bashion and Maryellen McKelvey of Somerville, Mass. Doug says that he will be working for Trans World Airlines in their operational engineering division at Kansas City, Mo. . . . Gordon Moore was married June 19 to Miss Kathleen O'Donnell of Denver. Gordon reports he plans to work for RCA in their data processing division. . . . Sam Gorovitz was married July 3 and will be going to Stanford this fall to study in the department of philosophy. . . . Bernie Ganz adds the final touch by writing that he planned to be a father by late June. He and his wife will be living in Haverhill, Mass. Congratulations — future engineer maybe? Bernie is working for Western Electric.

Charles McCallum will be studying at the University of Manchester in Manchester, England, on his Fulbright Fellowship. . . . Ted Niederman is using his to study in Germany. Best of luck to both of you. . . . And Dick McDowell, our penniless class treasurer, plans to work in the Dean's office — maybe that will keep Dick out of trouble. . . . Have a real good summer and write. —JOHN B. STEVENSON, *Secretary*, 2314 Bever Avenue, Cedar Rapids, Iowa.

Membership in the M.I.T. Club of New York (in the Hotel Biltmore, ORegon 9-5654) offers visitors to the

city many advantages for \$12.50 a year. It has a table for those who would otherwise dine alone.



Coach Ben Martin's veterans won all but one Lacrosse game.

Spring Sports At the Institute

THE VARSITY Lacrosse team fared the best of M.I.T.'s spring sports squads this year; it won 11 games and lost but one, and that by a single goal to the Harvard team.

The varsity baseball team won only 2 of its 12 contests, but both shortstop Dick Pickett '61 and pitcher Mickey Haney '62 made the Greater Boston All Stars.

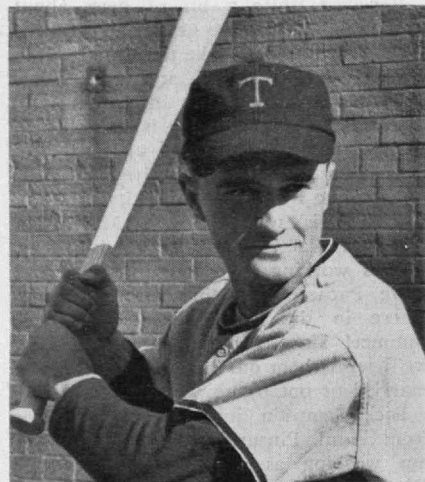
The tennis squad compiled an 8-7 record, with one tie, in its 16 games, and lost decisively only to Harvard and Navy teams.

The track squad had a rough season, but sneaked into the scoring columns of the New England meet held at M.I.T., when Joe Davis '61 finished in a five-way tie for second place in the high jump. That was the meet at which John Thomas made his world-record high jump of 7 feet, 1¾ inches.

The lightweight crew won the Geiger Cup at Cornell on May 7 from Cornell and Columbia, and the heavyweight freshmen won a close victory over Harvard on the Charles River on April 30.

M.I.T. sailors had a pleasant, winning, and busy season, and George Kirk '60 won the Compton Trophy for his sailing feats.

There was the usual varied intramural competition throughout the spring, and the Briggs Field area was well filled with performers whenever the weather was good.

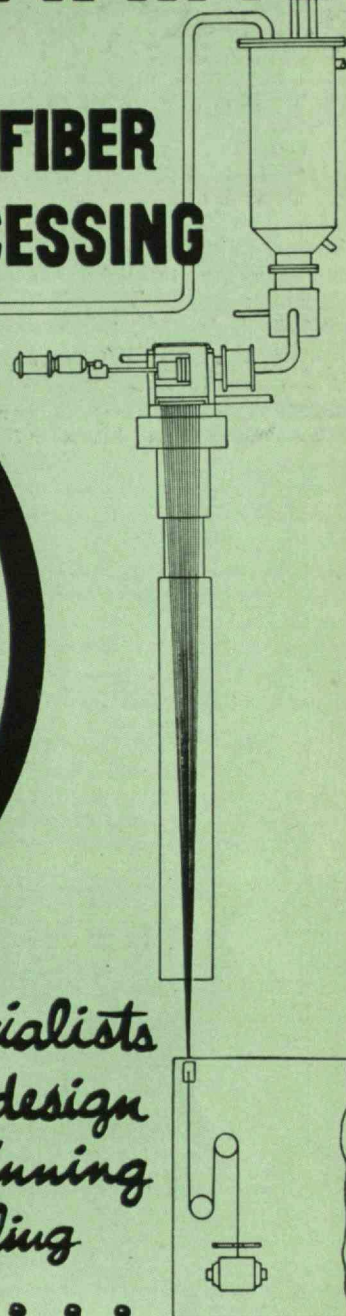


Haney's pitching and Pickett's hitting won baseball honors.



Coach Ed Crocker's tennis men compiled a commendable record.

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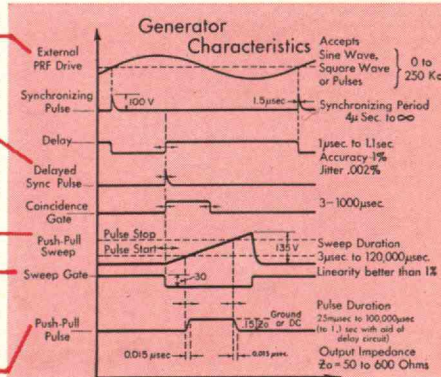
Direct synchronizing pulse timed by the input signal.

Delayed synchronizing pulse accurately adjustable in time by delay generator. Built-in coincidence circuit for timing the delayed synchronizing pulse by externally generated pulses fed into the instrument.

Push-pull sawtooth voltage of sufficient amplitude to be applied to the deflection plates of oscilloscope for examining the generator's output pulses, or for use in driving auxiliary equipment.

Push-pull gating pulses with same duration as the sweep.

Positive or negative pulses with excellent shape characteristics, continuously adjustable in duration, amplitude, impedance level, and delay with respect to (a) the direct sync pulse and (b) the sweep.



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